OMB No. 2040-0042 Approval Expires 12/31/2018

EPA

United States Environmental Protection Agency
Washington, DC 20460

Completion Form For Injection Wells

Administrative Information

1. Permittee: Florence Copper Inc.

Address *(Permanent Mailing Address) (Street, City, and ZIP Code)*: 1575 W Hunt Hwy, Florence, AZ 85132

2. Operator: Florence Copper Inc.

Address *(Street, City, State and ZIP Code)*: 1575 W Hunt Hwy, Florence, AZ 85132

3. Facility Name: Florence Copper Inc.

Telephone Number: (520) 374-3984

Address *(Street, City, State and ZIP Code)*: 1575 W Hunt Hwy, Florence, AZ 85132

4. Surface Location Description of Injection Well(s)

State: Arizona

County: Pinal

Surface Location Description

SW 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1225 ft. frm (N/S) N Line of quarter section and 1115 ft. from (E/W) E Line of quarter section.

Well Activity

- [ ] Class I
- [ ] Class II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] Class III
- [ ] Other

Well Status

- [x] Operating
- [ ] Modification/Conversion
- [ ] Proposed

Type of Permit

- [ ] Individual
- [x] Area : Number of Wells 33

Lease Number: NA

Well Number: O-04

Submit with this Completion Form the attachments listed in Attachments for Completion Form.

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Ian Ream, Senior Hydrogeologist		9-12-2018

Attachments to be submitted with the Completion report:

I. Geologic Information

1. Lithology and Stratigraphy

A. Provide a geologic description of the rock units penetrated by name, age, depth, thickness, and lithology of each rock unit penetrated.

B. Provide a description of the injection unit.

(1) Name
(2) Depth (drilled)
(3) Thickness
(4) Formation fluid pressure
(5) Age of unit
(6) Porosity (avg.)
(7) Permeability
(8) Bottom hole temperature
(9) Lithology
(10) Bottom hold pressure
(11) Fracture pressure

C. Provide chemical characteristics of formation fluid (attach chemical analysis).

D. Provide a description of freshwater aquifers.

(1) Depth to base of fresh water (less than 10,000 mg/l TDS).
(2) Provide a geologic description of aquifer units with name, age, depth, thickness, lithology, and average total dissolved solids.

II. Well Design and Construction

1. Provide data on surface, intermediate, and long string casing and tubing. Data must include material, size, weight, grade, and depth set.

2. Provide data on the well cement, such as type/class, additives, amount, and method of emplacement.

3. Provide packer data on the packer (if used) such as type, name and model, setting depth, and type of annular fluid used.

4. Provide data on centralizers to include number, type and depth.

5. Provide data on bottom hole completions.

6. Provide data on well stimulation used.

III. Description of Surface Equipment

1. Provide data and a sketch of holding tanks, flow lines, filters, and injection pump.

IV. Monitoring Systems

1. Provide data on recording and nonrecording injection pressure gauges, casing-tubing annulus pressure gauges, injection rate meters, temperature meters, and other meters or gauges.

2. Provide data on constructed monitor wells such as location, depth, casing diameter, method of cementing, etc.

V. Logging and Testing Results

Provide a descriptive report interpreting the results of geophysical logs and other tests. Include a description and data on deviation checks run during drilling.

VI. Provide an as-built diagrammatic sketch of the injection well(s) showing casing, cement, tubing, packer, etc., with proper setting depths. The sketch should include well head and gauges.

VII. Provide data demonstrating mechanical integrity pursuant to 40 CFR 146.08.

VIII. Report on the compatibility of injected wastes with fluids and minerals in both the injection zone and the confining zone.

IX. Report the status of corrective action on defective wells in the area of review.

X. Include the anticipated maximum pressure and flow rate at which injection will operate.

HALEY & ALDRICH, INC.
One Arizona Center
400 E. Van Buren St., Suite 545
Phoenix, AZ 85004
602.760.2450

TECHNICAL MEMORANDUM

14 September 2018
File No. 129687-010

TO: Florence Copper Inc.
Ian Ream, Senior Hydrogeologist

FROM: Haley & Aldrich, Inc.
Lauren Candreva, R.G.

Subject: Drilling, Installation, and Integrity Testing Summary
PTF Observation Well O-04
Florence Copper Inc., Florence, Arizona

This document describes drilling, installation, and testing of the Production Test Facility (PTF) observation well O-04 for Florence Copper Inc. (Florence Copper) in Florence, Arizona, including a description of the equipment used to perform the work, details of the completed work, and the results of well testing activities. Separate well completion reports have been created for each PTF well.

The Arizona Department of Water Resources Registry ID for well O-04 is 55-227233; the Well Registry Report is included in Appendix A. Well O-04 is located in the southeast quarter of the northwest quarter of the southwest quarter of Section 28 of Township 4 north, Range 9 East of the Gila and Salt River Baseline and Meridian (D(4-9)28CBD). Well O-04 is located within the Underground Injection Control (UIC) Permitted Area of Review (AOR) for UIC Permit R9UIC-AZ3-FY11-1 and was completed as a Class III observation well for the PTF (Figure 1).

Florence Copper contracted Hydro Resources to drill, install, and test well O-04 in accordance with *Bid Specification: Drilling, Installation, and Testing of Class III Observation Wells, Production Test Facility, Florence, Arizona* (Haley & Aldrich, Inc. [Haley & Aldrich], 2017). A Challenger 320 drilling rig was used for all drilling and construction activities. Haley & Aldrich provided oversight of drilling activities, geophysical logging, well installation, and testing. All reported depths are in feet below ground surface unless otherwise noted.

I. Geologic Information

1. Lithology and Stratigraphy

A. Geology of Penetrated Units

The geology penetrated during the drilling of the Class III well O-04 is summarized in the table below and a lithologic log is included in Appendix B.

Lithologic Unit Name	Depth to Bottom of Unit (feet)	Thickness of Unit (feet)	Lithology and Age of Unit
Upper Basin Fill Unit (UBFU)	280	280	Alluvium; Quaternary to Tertiary
Middle Fine-Grained Unit (MFGU)	302	22	Alluvium; Tertiary
Lower Basin Fill Unit (LBFU)	390	88	Alluvium; Tertiary to Cretaceous
Bedrock Oxide Unit (Oxide)	Not encountered	>818	Igneous porphyry – Precambrian

B. Description of Injection Unit

Name	Bedrock Oxide Unit
Depth Drilled	1,208 feet
Thickness	>818 feet
Formation Fluid Pressure	Atmospheric plus head of freshwater – no additional formation pressure
Age of Unit	Precambrian with intrusions of Precambrian to Tertiary rocks
Porosity[1]	Approximately 6 to 8.5%
Permeability	Hydraulic Conductivity = 0.56 feet per day
Bottom Hole Temperature	34.4 degrees Celsius
Lithology	Igneous porphyry – quartz monzonite, granodiorite with diabase and andesite dykes (detailed log included in Appendix B)
Bottom Hole Pressure	Approximately 430 pounds per square inch (PSI) (pressure exerted by the column of freshwater with no additional contribution from formation pressure)
Fracture Pressure	0.65 PSI per foot
[1] Porosity values for the bedrock oxide unit are approximate values from calculated neutron porosity values from injection well borehole surveys.	

C. Chemical Characteristics of Formation Fluid

The chemical characteristics of the formation fluid in the injection zone are summarized below and the results of the sampling of the center PTF wellfield well R-09. The table below summarizes the primary chemical characteristics detected in a formation fluid sample collected on 23 April 2018; the complete analytical report is included in Appendix C.

Analyte	Result (mg/L)
Metals	
Aluminum	<0.08
Antimony	<0.005
Arsenic	0.0016
Barium	0.071
Beryllium	<0.0005
Cadmium	<0.00025
Calcium	140
Chromium	0.0051
Cobalt	<0.00025
Copper	0.011
Iron	<0.30
Lead	<0.0005
Magnesium	27
Manganese	0.002
Mercury	<0.001
Nickel	0.0033
Potassium	6.8
Selenium	<0.0025
Sodium	170
Thallium	<0.0005
Zinc	<0.04
Anions	
Bicarbonate	150
Chloride	310
Fluoride	<0.5
Nitrate	8.8
Sulfate	190
Field Parameters	
Total Dissolved Solids	1,000
pH	7.8
Radiochemicals	
Uranium	0.016
Notes: *mg/L = milligrams per liter*	

Results of the sampling of well O-04 are included in the *PTF Mine Block Ambient Groundwater Concentrations and Initial Discharge Characterization of the Underground Workings* (Brown and Caldwell, 2018).

D. Description of Freshwater Aquifers

1) The depth to the base of the freshwater aquifer is defined by the interface where deeper formation fluid exhibits a total dissolved solids (TDS) value of 10,000 milligrams per liter (mg/L). The depth of the 10,000 mg/L interface is deeper than all of the wells drilled at the site and consequently has not been defined.

2) The geologic description of the aquifer units is included below:

Aquifer Unit Name	Age	Depth (feet)	Thickness (feet)	Lithology	Average Total Dissolved Solids[1] (mg/L)
UBFU	Quaternary/Tertiary	0 to 280	280	Alluvium	914
LBFU	Tertiary	302 to 390	88	Alluvium	754

[1] Average TDS values calculated from UBFU and LBFU monitoring well ambient monitoring results near the PTF.

II. Well Design and Construction

1. Well O-04 Casing Installed:

Casing	Material	Diameter (inches)	Weight (pounds per foot)	Depth (feet)	Borehole Diameter (inches)	Drilling Method
Surface	Mild Steel	14 O.D. 13⅜ I.D.	47.36	0 to 40	24	Solid-stem auger
Well Casing	Fiberglass Reinforced Plastic	5.47 O.D. 4.74 I.D.	5.40	-2.0 to 498	12¼	Reverse Flooded Rotary
Screen	PVC SCH80 with 0.020-inch wide slots	5.56 O.D. 4.81 I.D.	4.08	498 to 1,200	12¼	Reverse Flooded Rotary

Notes:
I.D. = inside diameter
O.D. = outside diameter
PVC = polyvinyl chloride
SCH = Schedule

2. Well Cement

Cement Interval	Cement Type	Additives	Amount Installed (cubic yards)	Method of Emplacement
Surface Casing	Type V Neat 21 sack slurry	None	7	Submerged tremie
Well Casing	Type V Neat 21 sack slurry	None	26.2	Submerged Tremie

Field forms documenting pipe tallies, annular materials, and cement tickets are included in Appendix D.

3. Annular Packers

No annular packers were used during construction of well O-04.

4. Centralizers

Casing	Centralizer Type	Number and Spacing
Well – FRP and PVC	Stainless steel – Heavy Duty	28 installed – every 40 feet
Notes: *FRP = fiberglass reinforced plastic* *PVC = polyvinyl chloride*		

5. Bottom Hole Completion

There is no bottom hole completion as this is not an oil/gas well. The well was completed at the bottom with a stainless-steel endcap of the same diameter as the well screen.

6. Well Stimulation

No well stimulation was used during the drilling and construction of well O-04.

III. Description of Surface Equipment

1. Surface Equipment

Well O-04 is an observation well and has been equipped with a pressure transducer for monitoring water level and a low-flow pump for collecting fluid samples for analysis of specific conductance. A diagram of the wellhead is included in the well as-built in Figure 2.

IV. Monitoring Systems

1. Well Monitoring Equipment

Equipment Type	Location	Type	Purpose
Pressure Transducer	Well Casing	Recording	Monitor water column/pressure
Electrical Conductivity Sensors	Well Annulus	Non-recording	Monitor formation conductivity
Annular Conductivity Sensors	Well Annulus	Non-recording	Monitor formation conductivity

2. Monitoring Wells

There are a total of 16 monitoring wells associated with the PTF: 7 point-of-compliance (POC) wells, 7 United States Environmental Protection Agency (USEPA) supplemental monitoring wells, and 2 operational monitoring wells. The POC wells are located outside the AOR and are not constructed as Class III wells. The supplemental monitoring and operational monitoring wells are located within the AOR and are constructed as Class III wells as required by the UIC Permit. The wells are summarized in the tables below by type.

POC Wells						
Well ID	**Location X/Y (State Plane NAD 83)**	**Depth (feet)**	**Well Nom. Diameter (inches)**	**Cementing Method**	**Screened Interval (feet)**	**Screened Lithologic Unit**
M14-GL	846750.23 746461.52	859	5 9/16 OD	Submerged tremie	778 to 838	LBFU
M15-GU	846697.17 746464.82	615	5 9/16 OD	Submerged tremie	554 to 594	LBFU
M22-O	846751.26 746514.47	1,140	5 9/16 OD to 528 feet; 4½ OD to 1,140 feet	Submerged tremie	932 to 1,130	Oxide
M23-UBF	846688.13 746512.48	250	6⅝ OD	Submerged tremie	210 to 250	UBFU
M52-UBF	851092.00 774178.00	274	5 9/16	Submerged tremie	198 to 273	UBFU
M54-LBF	847331.96 746682.61	630	5 9/16	Submerged tremie	310 to 629	LBFU
M54-O	847342.99 746702.36	1,199	5 9/16	Submerged tremie	668 to 1,198	Oxide

Supplemental Monitoring Wells						
Well ID	**Location X/Y (State Plane NAD 83)**	**Depth (feet)**	**Well Nom. Diameter (inches)**	**Cementing Method**	**Screened Interval (feet)**	**Screened Lithologic Unit**
M55-UBF	847541.46 746280.63	261	5	Submerged tremie	240 to 260	UBFU
M56-LBF	847518.70 746303.41	340	5	Submerged tremie	320 to 340	LBFU
M57-O	847378.37 746248.93	1,200	5	Submerged tremie	523 to 1,199	Oxide
M58-O	847672.23 746595.97	1,200	5	Submerged tremie	594 to 1,199	Oxide
M59-O	847934.95 746218.89	1,201	5	Submerged tremie	534 to 1,199	Oxide
M60-O	847599.37 745903.70	1,201	5	Submerged tremie	444 to 1,200	Oxide
M61-LBF	848184.46 746148.88	629	5	Submerged tremie	429 to 629	LBFU

Operational Monitoring Wells						
Well ID	**Location X/Y (State Plane NAD 83)**	**Depth (feet)**	**Well Nom. Diameter (inches)**	**Cementing Method**	**Screened Interval (feet)**	**Screened Lithologic Unit**
MW-01-LBF	847487.97 746360.54	444	5	Submerged tremie	330 to 440	LBFU
MW-01-O	847499.04 746369.31	1,200	5	Submerged tremie	500 to 1,200	Oxide

V. Logging and Testing Results

Borehole geophysical logging was conducted on well O-04 in two phases: 1) open-hole surveys in the 12.25-inch borehole prior to installation of the well casing and screen, and 2) cased-hole surveys in the completed well.

The open-hole geophysical surveys completed at well O-04 included:

- Spontaneous potential;
- Natural gamma;

- Electrical resistivity (short and long normal);
- Caliper with calculated volume;
- Temperature;
- Sonic; and
- Deviation.

The cased-hole geophysical surveys completed included:

- Sonic (for cement bond with fiberglass reinforced plastic [FRP]);
- 4 Pi Density (for cement bond with FRP);
- Dual Density (for cement bond with FRP);
- Natural Gamma;
- Fluid Conductivity;
- Temperature;
- Gyroscopic Deviation Survey; and
- Video Survey.

Open-hole geophysical surveys were used to support identification of the lithologic contacts, to evaluate the condition of the borehole, and to evaluate the deviation of the borehole.

The primary logs used to evaluate lithologic contacts are natural gamma ray, short (16-inch) and long (64-inch) normal electrical resistance, and single-point resistance. The lithologic contacts for the Middle Fine-Grained Unit (MFGU) were selected based on the short and long resistance and the single-point resistance. All the resistivity logs decreased and stayed consistently low through the MFGU. This contact is generally a relatively sharp decrease in resistance at the top of the unit and a gradual increase in resistance below the bottom of the unit.

The contact between the Lower Basin Fill Unit (LBFU) and the bedrock was identified primarily with natural gamma and correlated with the resistance logs. There is a consistent increase in gamma at the contact between the LBFU and the bedrock that had been identified and documented at the site during exploration in the 1990s. For well O-04, the gamma is consistently at approximately 60 American Petroleum Institute (API) units throughout the Upper Basin Fill Unit (UBFU) and MFGU, a slight increase to approximately 80 API units in the LBFU, and an increase at 390 feet to over 140 API units. After the increase at 390 feet, the natural gamma begins to vary significantly more than it did in the alluvial units. This change in the response of the natural gamma indicates the contact with the bedrock unit. Also, at this approximate depth there is also an increase in the single-point resistance and the short normal resistance, indicating the formation has become more resistant. This is likely primarily due to the bedrock containing less water than the alluvial formation above.

Cased-hole geophysical surveys were conducted to evaluate the cement seal, the casing-cement bond, to document baseline fluid temperature and conductivity and to evaluate the plumbness of the well. The cement-bond is discussed in Section VII.

Copies of all the open-hole geophysical logs and cased-hole temperature, fluid conductivity, and natural gamma are included in Appendix E; a figure summarizing the open-hole logs used to evaluate geology is included as Figure 3. The cased-hole logs used to evaluate cement bond are included in Appendix F.

VI. Well As-Built Diagram

An as-built diagram for well O-04 is included as Figure 2.

VII. Demonstration of Mechanical Integrity

A demonstration of Part I mechanical integrity of the well was completed using a standard annular pressure test (SAPT) in accordance with Part II.E.3.a.i.A of the UIC Permit. Mechanical integrity will be demonstrated every 2 years during operations and will be confirmed by daily injection pressure monitoring that will be conducted per the UIC Permit once the well is operational. Well O-04 SAPT is summarized below.

The mechanical integrity of the blank well casing was tested by performing a SAPT on 28 March 2018. The SAPT was conducted by installing an inflatable straddle packer assembly in the well. The bottom packer was installed near the bottom of the FRP-cased portion of the well and the top packer was near the surface. The packers were inflated to form a seal against the casing. The bottom 5 feet of the packer drop pipe was perforated to allow for communication between the tubing and the annulus of the packer assembly. The drop pipe extended through the wellhead and a high pressure/low volume pump was attached to the drop pipe to pressurize the test interval. A valve on the drop pipe at the surface was used to isolate the test interval once the planned test pressure was achieved.

An In-Situ LevelTROLL® pressure transducer with a data logger was installed at the well head and was connected to the packer assembly annulus interval via a National Pipe Thread adapter. The LevelTROLL was used to monitor and record pressure inside the well during the SAPT. To conduct the SAPT, water was pumped from a nearby well immediately prior to testing. Before the water was pumped into the test well, the water temperature was measured to ensure that it was similar to the ambient groundwater temperature of the test well to reduce the potential of differential temperature effects on the well casing. The SAPT for the Class III well was conducted by applying hydraulic pressure to the well casing and shutting in pressure between the packer and wellhead assembly, monitoring the shut-in pressure for a 30-minute period, then measuring the volume of water returned from the well casing after the pressure was released.

On 28 March 2018, the packer was installed to approximately 480 feet and the SAPT was conducted successfully two times. The USEPA SAPT form, a table of the data, and a chart of the data is provided in Appendix G.

Part II mechanical integrity is demonstrated by the cementing records included in this report in accordance with Part II.E.3.ii.C of the UIC Permit and will be demonstrated during operations by annular conductivity monitoring on the observation and multi-level sampling wells in accordance with Part II.E.3.a.ii.A of the UIC Permit.

Cemented Interval	Cement Type	Calculated Grout Volume (cubic yards)	Installed Grout Volume (cubic yards)
Surface Casing	Type V 21 sack neat cement slurry	3.1	7
Well Casing	Type V 21 sack neat cement slurry	19.7	26.2

On 22 March 2018, a suite of geophysical logs was run over the entire length of the completed well to verify the grout seal. A summary of the logs completed to demonstrate cement bond are included in Appendix F.

There is not a bond log tool designed to evaluate cement bond with FRP casing, so the cement interval with FRP casing of well O-04 was evaluated using density logs. The logs collected included sonic, focused density, and 4pi density. Based on the measured density of the FRP cased interval of well O-04, no significant cement deficiencies were noted in the sonic data collected from approximately 228 feet (static water level) to 471 feet, and no significant deficiencies were noted in the 4pi density data collected from 44 to 471 feet. There were some very localized, low density intervals identified in the 4pi density logs but they were insignificant, only extending 2 to 4 feet. A summary of the FRP cased data is included in the well completion summary in Appendix F.

VIII. Compatibility of Injected Waste

The Florence Copper Project is a Class III mineral extraction project and does not include the injection of any waste products of any kind. The injected fluid (lixiviant) is a carefully constituted in-situ copper recovery solution that will be recovered and recycled following injection.

The compatibility of the lixiviant was evaluated as part of the geochemical modeling completed by Florence Copper and summarized in the *Geochemical Evaluation to Forecast Composition of Process Solutions for In-Situ Copper Recovery Pilot Test Facility at Florence Copper, Florence Arizona* (Daniel B. Stephens Inc., 2014) which was included in Attachment H of the UIC Permit Application.

IX. Status of Corrective Action on Defective Wells in the Area of Review

There are not currently any defective wells in the AOR.

X. Maximum Pressures and Flow Rates for O-04

Maximum Operating Pressure	Maximum Flow
Atmospheric	Not applicable – observation well

This well is an observation well used to monitor hydraulic control of the PTF; no fluids will be injected and only fluid to measure specific conductivity will be extracted using the installed low-flow pump.

XI. Well Development

Well O-04 was developed by the airlift method, followed by pumping, and was completed by Hydro Resources using a workover rig. To purge drilling fluids and solids, the well was air-lift developed from 27 February through 2 March 2018 at various depths ranging from approximately 425 to 1,200 feet. During development, the airlift pump was turned on and off to surge the well. On 28 February 2018, approximately 3 gallons of AquaClear PFD® polymer dispersant was swabbed into the screened interval of the well. The discharge was relatively clear and sand-free at the end of the airlift development period.

On 3 March 2018, a submersible pump was temporarily installed to approximately 1,164 feet to pump develop the well. Pump development was conducted at approximately 60 to 75 gallons per minute (gpm) over a period of 3 days (3 to 5 March 2018), during which time the submersible pump was raised to 900 feet and 600 feet (both on 4 March 2018), and periodically turned off to surge the well. The pumping water level at the end of each pumping period was approximately 250 to 255 feet, with water levels rebounding to approximately 210 to 215 feet prior to the next pumping period. In general, the discharge was visually clear and sand-free throughout the pump development period, with turbidity values less than 5 Nephelometric Turbidity Unit at the end of the development period. Well development forms are included in Appendix H.

XII. Well Completion

A well video survey was conducted on 21 March 2018. The video log report is included as Appendix I. The video log depths are presented in feet below the top of the casing and so vary slightly from what is recorded, but with the correction for stick up are the same.

The video log indicates the top of fill in the well is at 1,195 feet.

The surveyed location for well O-04 is:

Northing (feet)	Easting (feet)	Measuring Point Elevation (feet amsl)
745988.60	847624.06	1477.92
***Notes**:* *Northing and easting locations provided in State Plane North American Datum 1983, vertical location provided in North American Vertical Datum 1988.* *amsl – feet above mean sea level*		

XIII. Downhole Equipment

The equipment installed in well O-04 includes:

- QED® low-flow sampling pump hung on drop tubing – pump at 600 feet; and
- Pressure transducer.

The type and depth of equipment installed in each well is not constrained by the UIC Permit or Aquifer Protection Permit (APP). This information is provided in accordance with Section 2.7.4.3 of the APP. Operational consideration may require that the type and depth of equipment may need to be changed in response to conditions observed during operations.

XIV. References

Brown and Caldwell, Inc., 2018. *PTF Mine Block Ambient Groundwater Concentrations and Initial Discharge Characterization of the Underground Workings*. September.

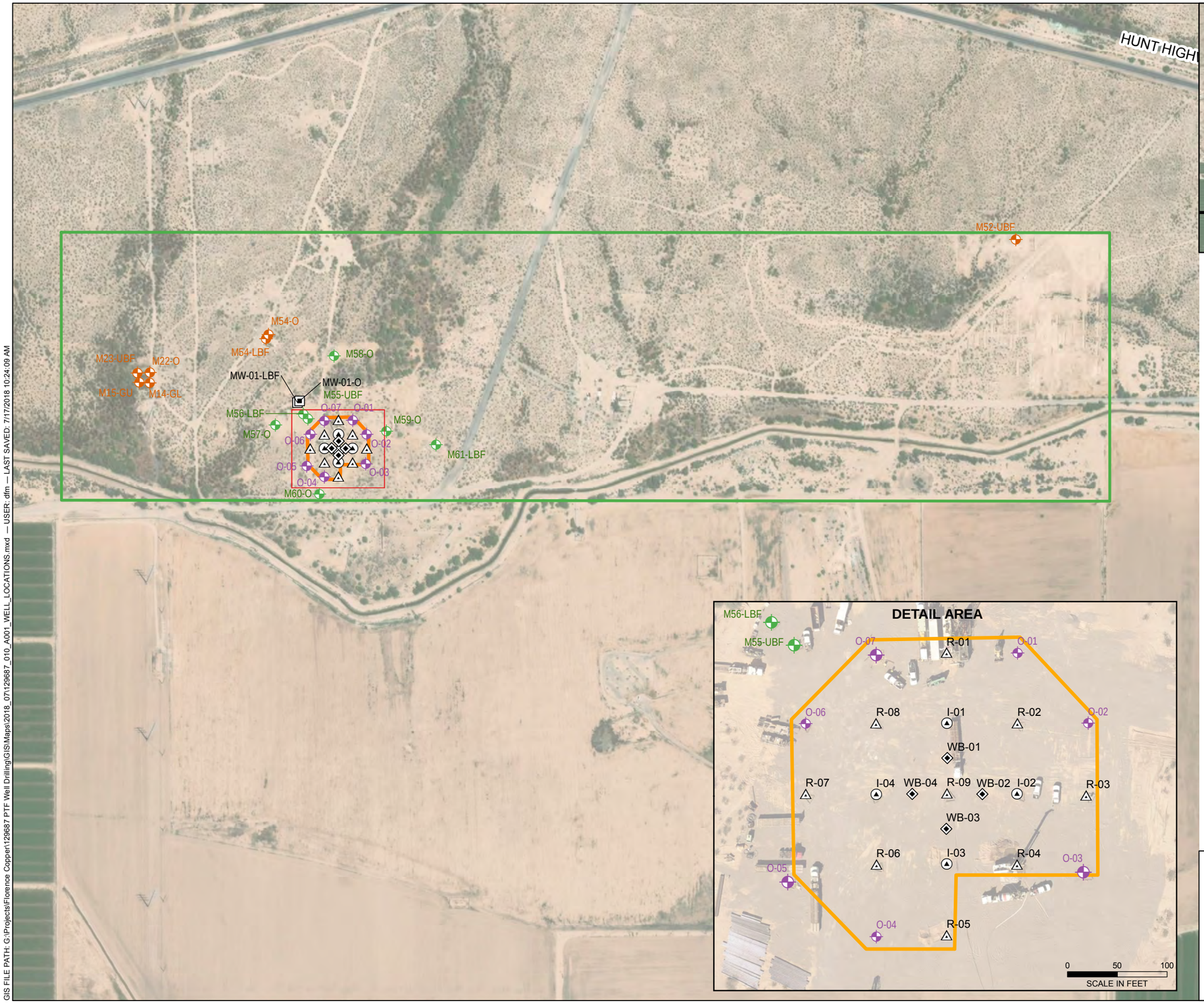
Daniel B. Stephens, Inc., 2014. *Geochemical Evaluation to Forecast Composition of Process Solutions for In-Situ Copper Recovery Pilot Test Facility at Florence Copper, Florence Arizona.* May.

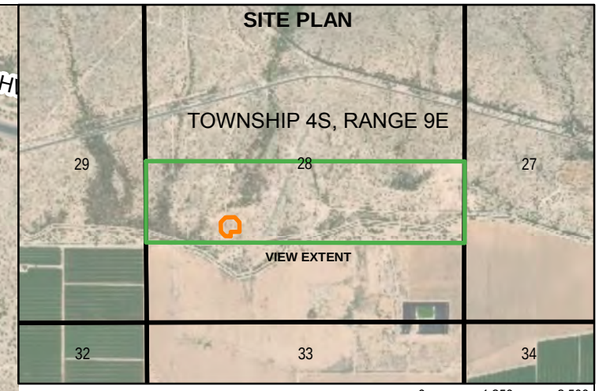
Haley & Aldrich, Inc., 2017. *Bid Specification: Drilling, Installation, and Testing of Class III Observation Wells, Production Test Facility, Florence, Arizona*. Revised September 2017.

Enclosures:

- Figure 1 – Well Locations
- Figure 2 – O-04 Well As-Built Diagram
- Figure 3 – Geophysical Data and Lithologic Log
- Appendix A – Arizona Department of Water Resources Well Registry Report
- Appendix B – Lithologic Log
- Appendix C – Chemical Characteristics of Formation Water
- Appendix D – Well Completion Documentation
- Appendix E – Geophysical Logs
- Appendix F – Cement Bond Log Summary
- Appendix G – SAPT Documentation
- Appendix H – Well Development Field Forms
- Appendix I – Well Video Log and Gyroscopic Survey Reports

FIGURES





LEGEND

- OBSERVATION WELL
- SUPPLEMENTAL MONITORING WELL
- POINT-OF-COMPLIANCE WELL

PTF WELL

- INJECTION
- RECOVERY
- WESTBAY WELL
- OPERATIONAL MONITORING
- PTF WELL FIELD
- STATE LAND LEASE

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. AERIAL IMAGERY SOURCE: ESRI

0 500 1,000
SCALE IN FEET

HALEY ALDRICH

FLORENCE COPPER PROJECT
FLORENCE, ARIZONA

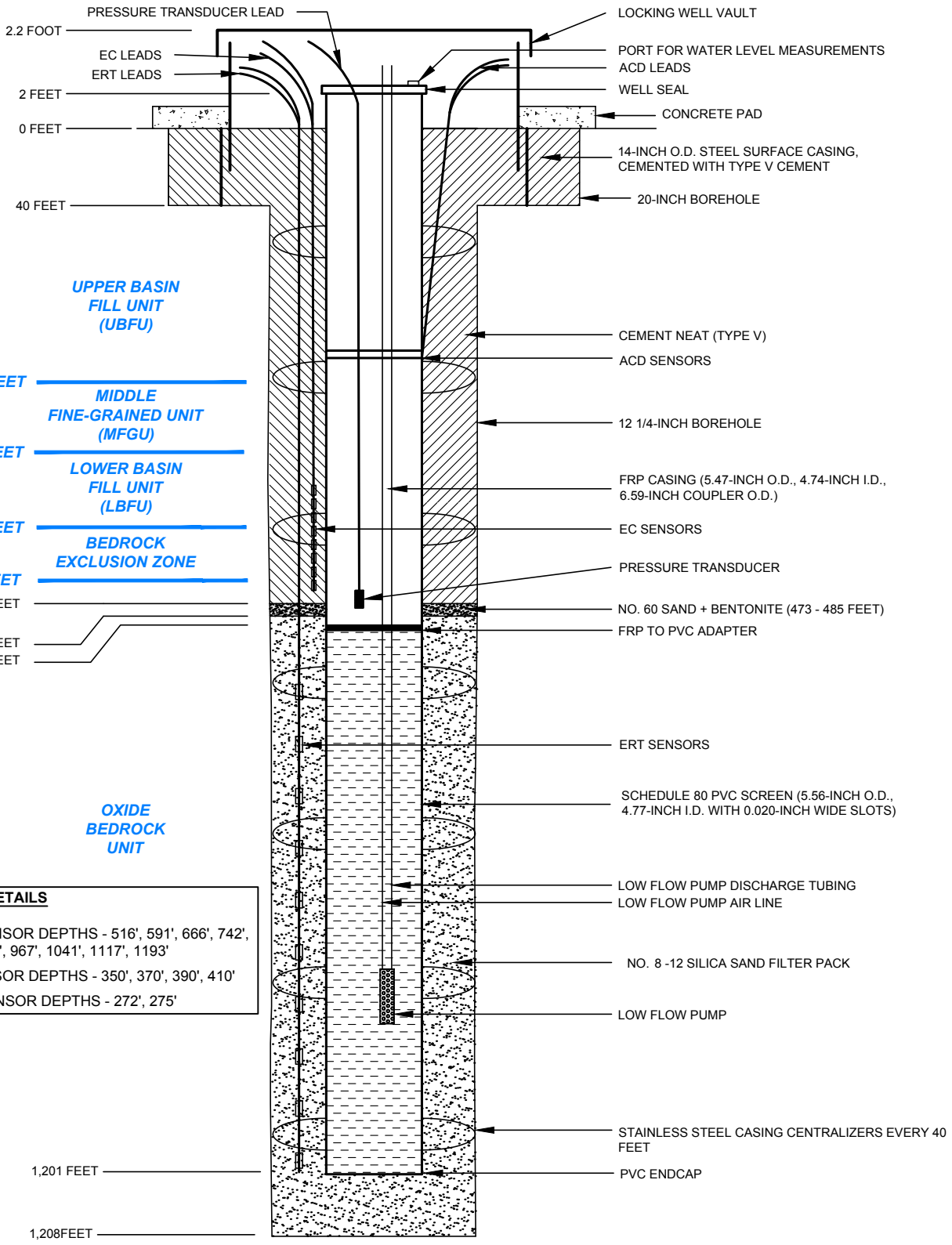
WELL LOCATIONS

FLORENCE COPPER INC.

AUGUST 2018

FIGURE 1

GIS FILE PATH: G:\Projects\Florence Copper\129687 PTF Well Drilling\GIS\Maps\2018_07\129687_010_A001_WELL_LOCATIONS.mxd — USER: dfm — LAST SAVED: 7/17/2018 10:24:09 AM



SENSOR DETAILS

- ERT SENSOR DEPTHS - 516', 591', 666', 742', 817', 892', 967', 1041', 1117', 1193'
- EC SENSOR DEPTHS - 350', 370', 390', 410'
- ACD SENSOR DEPTHS - 272', 275'

NOTES

1. WELL REGISTRATION NO.: 55-227233
2. CADASTRAL LOCATION: D (4-9) 28 CBD
3. MEASURING POINT ELEVATION: 1478.05' AMSL
4. I.D. = INSIDE DIAMETER
5. O.D. = OUTSIDE DIAMETER
6. PVC = POLYVINYL CHLORIDE
7. FRP = FIBERGLASS REINFORCED PLASTIC
8. ACD = ANNULAR CONDUCTIVITY DEVICE
9. EC = ELECTRICAL CONDUCTIVITY
10. ERT = ELECTRICAL RESISTIVITY TOMOGRAHY

HALEY ALDRICH

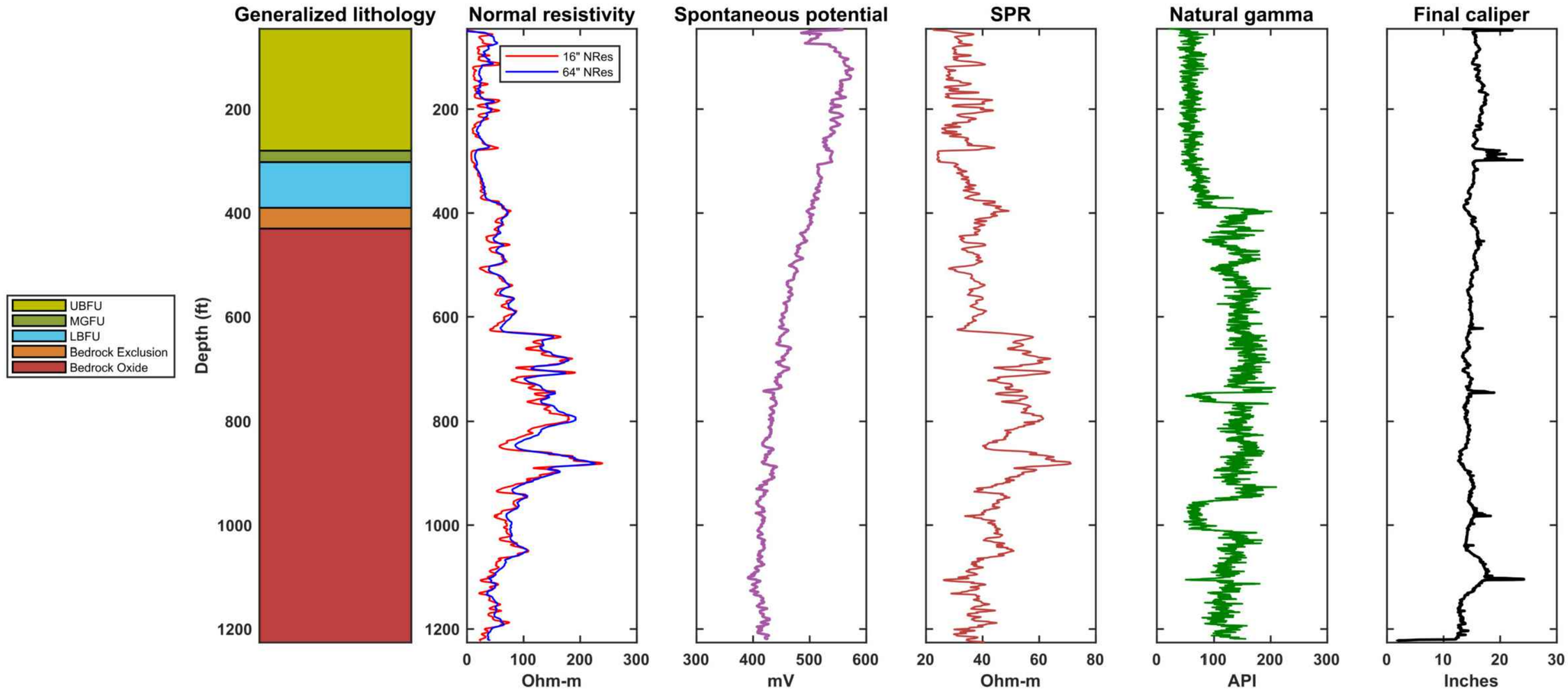
PRODUCTION TEST FACILITY
FLORENCE COPPER, INC.
FLORENCE, ARIZONA

OBSERVATION WELL O-04 AS-BUILT DIAGRAM

FLORENCE COPPER

SCALE: NOT TO SCALE
OCTOBER 2017

FIGURE 2



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G:\129687\GLOBAL\CAD\129687-010 GEOPHYICAL DATA2 2018-0802.DWG

HALEY ALDRICH

PRODUCTION TEST FACILITY
FLORENCE COPPER, INC.
FLORENCE, ARIZONA

OBSERVATION WELL O-04 GEOPHYSICAL DATA AND LITHOLOGIC LOG

FLORENCE COPPER

SCALE: AS SHOWN
SEPTEMBER 2018

FIGURE 3

APPENDIX A

Arizona Department of Water Resources Well Registry Report

Arizona Department of Water Resources
Water Management Division
P.O. Box 36020 Phoenix, Arizona 85067-6020
(602) 771-8627 • (602) 771-8690 fax
· www.azwater.gov ·

RECEIVED
AUG 20 2018
ADWR

Well Driller Report and Well Log

CJ

THIS REPORT MUST BE FILED WITHIN **30 DAYS** OF COMPLETING THE WELL.

PLEASE PRINT CLEARLY USING BLACK OR BLUE INK.

FILE NUMBER: D (4-9) 28 CBD
WELL REGISTRATION NUMBER: **55 -** 227233
PERMIT NUMBER (IF ISSUED):

SECTION 1. DRILLING AUTHORIZATION

Drilling Firm

Mail To:

NAME	DWR LICENSE NUMBER
Hydro Resources Inc.	816
ADDRESS	TELEPHONE NUMBER
13027 County Rd. 18 Unit C	(303) 857-7544
CITY / STATE / ZIP	FAX
Ft. Lupton, CO 80621	(303) 857-2826

SECTION 2. REGISTRY INFORMATION

Well Owner

FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL: Florence Copper Inc.

MAILING ADDRESS: 1575 W. Hunt Hwy

CITY / STATE / ZIP CODE: Florence, AZ 85132

CONTACT PERSON NAME AND TITLE: Ian Ream - Sr. Hydrologist

TELEPHONE NUMBER: (520) 374-3984

FAX:

WELL NAME (e.g., MW-1, PZ-3, Lot 25 Well, Smith Well, etc.): O - 04

Location of Well

WELL LOCATION ADDRESS (IF ANY):

TOWNSHIP (N/S)	RANGE (E/W)	SECTION	160 ACRE	40 ACRE	10 ACRE
4S	9E	28	SW ¼	NW ¼	SE ¼

LATITUDE			LONGITUDE		
33 ° Degrees	2 ' Minutes	59.3 "N Seconds	-111 ° Degrees	26 ' Minutes	5.51 "W Seconds

METHOD OF LATITUDE/LONGITUDE (CHECK ONE)
☒ *GPS: Hand-Held ☐ *GPS: Survey-Grade

LAND SURFACE ELEVATION AT WELL: 1492 Feet Above Sea Level

METHOD OF ELEVATION (CHECK ONE)
☒ *GPS: Hand-Held ☐ *GPS: Survey-Grade

*GEOGRAPHIC COORDINATE DATUM (CHECK ONE)
☒ NAD-83 ☐ Other *(please specify)*:

COUNTY: PINAL

ASSESSOR'S PARCEL ID NUMBER: BOOK | MAP | PARCEL

SECTION 3. WELL CONSTRUCTION DETAILS

Drill Method

CHECK ALL THAT APPLY
☐ Air Rotary
☐ Bored or Augered
☐ Cable Tool
☐ Dual Rotary
☒ Mud Rotary
☒ Reverse Circulation
☐ Driven
☐ Jetted
☐ Air Percussion / Odex Tubing
☐ Other *(please specify)*:

Method of Well Development

CHECK ALL THAT APPLY
☒ Airlift
☐ Bail
☐ Surge Block
☒ Surge Pump
☐ Other *(please specify)*:

Method of Sealing at Reduction Points

CHECK ONE
☐ None
☐ Packed
☐ Swedged
☐ Welded
☐ Other *(please specify)*:

Condition of Well

CHECK ONE
☒ Capped
☐ Pump Installed

Construction Dates

DATE WELL CONSTRUCTION STARTED: 01/20/2018

DATE WELL CONSTRUCTION COMPLETED: 05/22/2018

I state that this notice is filed in compliance with A.R.S. § 45-596 and is complete and correct to the best of my knowledge and belief.

SIGNATURE OF QUALIFYING PARTY:

DATE: 5/22/2018

Well Driller Report and Well Log

WELL REGISTRATION NUMBER
55 - 227233

SECTION 4. WELL CONSTRUCTION DESIGN (AS BUILT) (attach additional page if needed)

Depth

DEPTH OF BORING	DEPTH OF COMPLETED WELL
1225 Feet Below Land Surface	1200 Feet Below Land Surface

Water Level Information

STATIC WATER LEVEL	DATE MEASURED	TIME MEASURED	IF FLOWING WELL, METHOD OF FLOW REGULATION
229 Feet Below Land Surface	03/22/2018	1 PM	☐ Valve ☐ Other:

Borehole

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	BOREHOLE DIAMETER (inches)
0	40	30
40	473	20
473	1225	12.25

Installed Casing

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	OUTER DIAMETER (inches)	MATERIAL TYPE (T) STEEL	PVC	ABS	IF OTHER TYPE, DESCRIBE	PERFORATION TYPE (T) BLANK OR NONE	WIRE WRAP	SHUTTER SCREEN	MILLS KNIFE	SLOTTED	IF OTHER TYPE, DESCRIBE	SLOT SIZE IF ANY (inches)
0	40	24.5	X				X						
0	473	14.5	X				X						
0	499	5.44				FRP	X						
499	1200	5.56		X							X		.020

Installed Annular Material

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	ANNULAR MATERIAL TYPE (T) NONE	CONCRETE	NEAT CEMENT OR CEMENT GROUT	CEMENT-BENTONITE GROUT	BENTONITE GROUT	BENTONITE CHIPS	BENTONITE PELLETS	IF OTHER TYPE OF ANNULAR MATERIAL, DESCRIBE	FILTER PACK SAND	FILTER PACK GRAVEL	FILTER PACK SIZE
0	40			X								
0	473			X								
473	485							X				
485	1225									X		6-9

Well Driller Report and Well Log

WELL REGISTRATION NUMBER
55 - 227233

SECTION 5. GEOLOGIC LOG OF WELL

DEPTH FROM SURFACE		Description	Check (T) every interval where water was encountered (if known)
FROM (feet)	TO (feet)	Describe material, grain size, color, etc.	
0	280	UPPER BASIN FILL UNIT	
280	302	MIDDLE FINE GRAINED UNIT	
302	430		
430	1225	BEDROCK OXIDE UNIT	

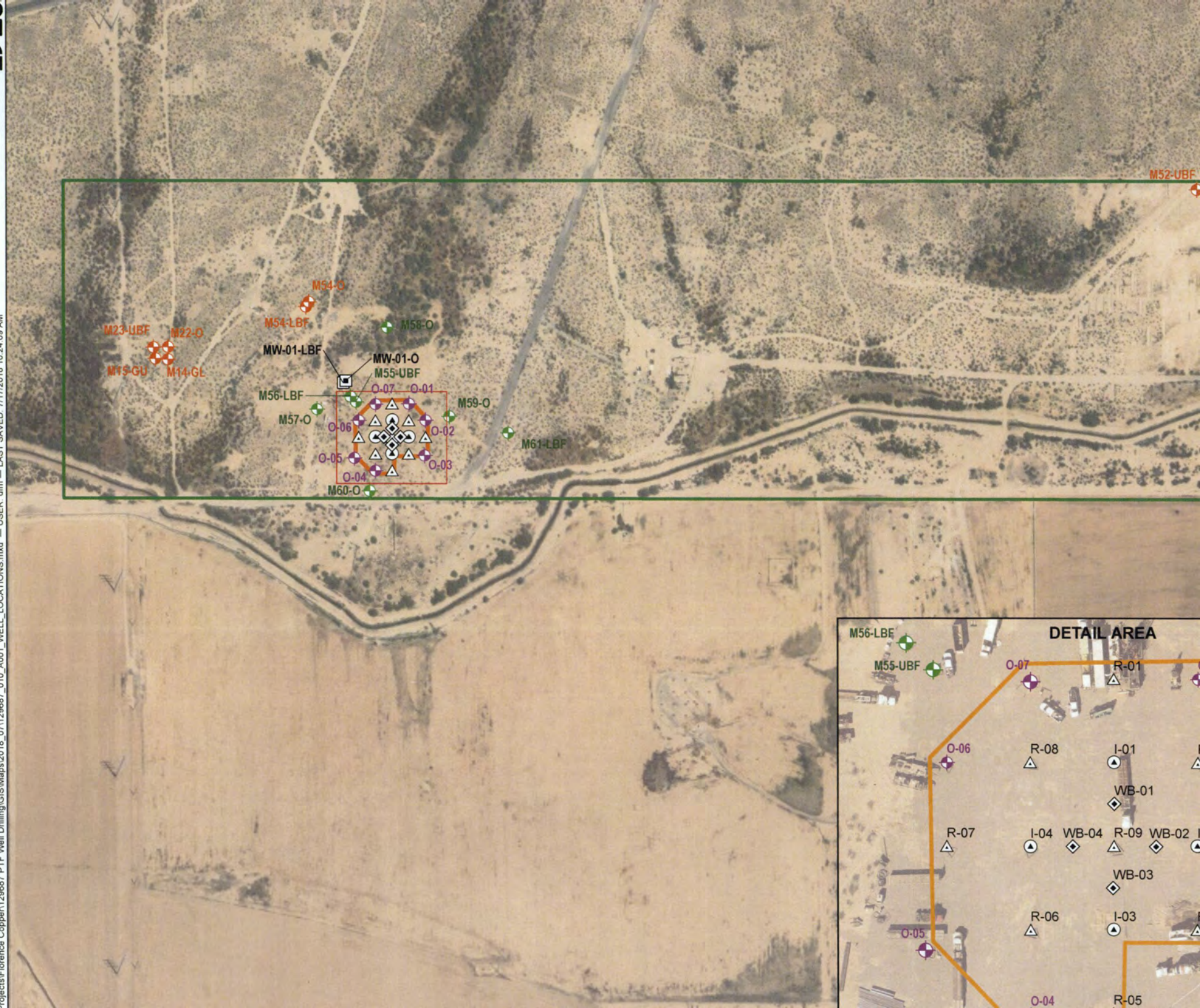
Well Driller Report and Well Log

WELL REGISTRATION NUMBER
55 - 227233

SECTION 6. WELL SITE PLAN

NAME OF WELL OWNER	COUNTY ASSESSOR'S PARCEL ID NUMBER		
Florence Copper Inc.	BOOK	MAP	PARCEL

- Please draw the following: (1) the boundaries of property on which the well was located; (2) the well location; (3) the locations of all septic tank systems and sewer systems on the property or within 100 feet of the well location, even if on neighboring properties; and (4) any permanent structures on the property that may aid in locating the well.
- Please indicate the distance between the well location and any septic tank system or sewer system.



Run Date: 02/21/2018

AZ DEPARTMENT OF WATER RESOURCES

WELL REGISTRY REPORT - WELLS55

Location D 4.0 9.0 28 C B D

Well Reg.No 55 - 227233

AMA PINAL AMA

Registered Name AZ STATE LAND DEPT.
1616 W. ADAMS ST.
ATTN: LISA ATKINS
PHOENIX AZ 85007

File Type NEW WELLS (INTENTS OR APPLICATIONS)
Application/Issue Date 04/19/2017

Owner OWNER
Driller No. 816
Driller Name HYDRO RESOURCES - ROCKY MOUNTAIN, INC.
Driller Phone 303-857-7540
County PINAL

Well Type ENV - MONITOR
SubBasin ELOY
Watershed UPPER GILA RIVER
Registered Water Uses MONITORING
Registered Well Uses MONITOR
Discharge Method NO DISCHARGE METHOD LISTED
Power NO POWER CODE LISTED

Intended Capacity GPM 0.00

Well Depth	0.00	**Case Diam**	0.00	**Tested Cap**	0.00
Pump Cap.	0.00	**Case Depth**	0.00	**CRT**	
Draw Down	0.00	**Water Level**	0.00	**Log**	
		Acres Irrig	0.00	**Finish**	NO CASING CODE LISTED

Contamination Site: NO - NOT IN ANY REMEDIAL ACTION SITE

Tribe: Not in a tribal zone

Comments NP
Well O-04
AZ State Land Dept. Mineral Lease #11-026500

Current Action

2/21/2018 869 CHANGE OF DRILLER PACKET ISSUED
Action Comment: NTP

Action History

2/16/2018 865 CHANGE OF DRILLER RECEIVED
Action Comment: NTP

4/25/2017 550 DRILLING AUTHORITY ISSUED
Action Comment: TNV

4/25/2017 555 DRILLER & OWNER PACKETS MAILED
Action Comment: TNV

4/19/2017 155 NOI RECEIVED FOR A NEW NON-PRODUCTION WELL
Action Comment: TNV

ARIZONA DEPARTMENT OF WATER RESOURCES

1110 W. Washington St. Suite 310
Phoenix, Arizona 85007

REISSUE

THIS AUTHORIZATION SHALL BE IN POSSESSION OF THE DRILLER DURING ALL DRILLING OPERATIONS

WELL REGISTRATION NO: **55-227233** WELL OWNER ID: O-04

AUTHORIZED DRILLER: **HYDRO RESOURCES - ROCKY MOUNTAIN, INC.** LICENSE NO: **816**

NOTICE OF INTENTION TO DRILL ENV - MONITOR WELL(S) HAS BEEN FILED WITH THE DEPARTMENT BY:

WELL OWNER: **AZ STATE LAND DEPT. 1616 W. ADAMS ST. ATTN: LISA ATKINS PHOENIX, AZ, 85007**

THE WELL(S) IS/ARE TO BE LOCATED IN THE:

SE 1/4 of the **NW** 1/4 of the **SW** 1/4 Section **28** Township **4.0** **SOUTH** Range **9.0** **EAST**

NO. OF WELLS IN THIS PROJECT:

THIS AUTHORIZATION EXPIRES AT MIDNIGHT ON THE DAY OF **April 19, 2018**

Stella Murillo

GROUNDWATER PERMITTING AND WELLS

THE DRILLER MUST FILE A LOG OF THE WELL WITHIN 30 DAYS OF COMPLETION OF DRILLING.

GREAT SEAL OF THE STATE OF ARIZONA
DITAT DEUS
1912

ARIZONA DEPARTMENT of WATER RESOURCES
1110 W. Washington St. Suite 310
Phoenix, AZ 85007
602-771-8500
azwater.gov

February 21, 2018

AZ STATE LAND DEPT.
1616 W. ADAMS ST.
ATTN: LISA ATKINS
PHOENIX, AZ 85007

DOUGLAS A. DUCEY
Governor

THOMAS BUSCHATZKE
Director

Registration No. 55- 227233
File Number: D(4-9) 28 CBD

Dear Well Applicant:

Enclosed is a copy of the Notice of Intention to Drill (NOI) a well which you or your driller recently filed with the Department of Water Resources. This letter is to inform you that the Department has approved the NOI and has mailed, or made available for download, a drilling authorization card to your designated well drilling contractor. The driller may not begin drilling until he/she has received the authorization, and must keep it in their possession at the well site during drilling. Although the issuance of this drill card authorizes you to drill the proposed well under state law, the drilling of the well may be subject to restrictions or regulations imposed by other entities.

Well drilling activities must be completed within one year after the date the NOI was filed with the Department. If drilling is not completed within one year, a new NOI must be filed and authorization from this Department received before proceeding with drilling. If the well cannot be successfully completed as initially intended (dry hole, cave in, lost tools, etc.), the well must be properly abandoned and a Well Abandonment Completion Report must be filed by your driller [as required by A.A.C. R12-15-816(F)].

If you change drillers, you must notify the Department of the new driller's identity on a Request to Change Well Information (form 55-71A). Please ensure that the new driller is licensed by the Department to drill the type of well you require. A new driller may not begin drilling until he/she receives a new drilling authorization card from the Department.

If you find it necessary to change the location of the proposed well(s), you may not proceed with drilling until you file an amended NOI with the Department. An amended drilling authorization card will then be issued to the well drilling contractor, which must be in their possession before drilling begins.

Arizona statute [A.R.S. § 45-600] requires registered well owners to file a Pump Installation Completion Report (form 55-56) with the Department within 30 days after the installation of pumping equipment, if authorized. A blank report is enclosed for your convenience. State statute also requires the driller to file a complete and accurate Well Drillers Report and Well Log (form 55-55) within 30 days after completion of drilling. A blank report form was provided to your driller with the drilling authorization card. You should insist and ensure that all of the required reports are accurately completed and timely filed with the Department.

Please be advised that Arizona statute [A.R.S. § 45-593(C)] requires a registered well owner to notify the Department of a change in ownership of the well and/or information pertaining to the physical characteristics of the well in order to keep this well registration file current and accurate. Any change in well information or a request to change well driller must be filed on a Request to Change Well Information form (form 55-71A) that may be downloaded from the ADWR Internet website at www.azwater.gov.

Sincerely,

Nolan Powers

Groundwater Permitting and Wells Section

Arizona Department of Water Resources
Groundwater Permitting and Wells Section
P.O. Box 36020 Phoenix, Arizona 85067-6020
(602) 771-8500 • (602) 771-8690
· www.azwater.gov ·

Notice of Intent to Drill, Deepen, or Modify a *Monitor / Piezometer / Environmental* Well

$150 FEE

- Review instructions prior to completing form in black or blue ink.
- You must include with your Notice:
  - $150 check or money order for the filing fee.
  - Well construction diagram, labeling all specifications listed in Section 6 and Section 7.

  Authority for fee: A.R.S. § 45-596 and A.A.C. R12-15-104.

AMA / INA	B	SB
Pinal	PIN	11
RECEIVED DATE: 4/19/2017	WS: 08 UGR	
ISSUED DATE: 4/25/2017	REMEDIAL ACTION SITE: 000	

FILE NUMBER: D(4-9)28CBD
WELL REGISTRATION NUMBER: 55 - 227253

SECTION 1. REGISTRY INFORMATION

To determine the location of well, please refer to the Well Registry Map (https://gisweb.azwater.gov/WellRegistry/Default.aspx) and/or Google Earth (http://www.earthpoint.us/Townships.aspx)

Well Type — CHECK ONE
- [x] Monitor
- [ ] Piezometer
- [ ] Vadose Zone
- [ ] Air Sparging
- [ ] Soil Vapor Extraction
- [ ] Other (*please specify*):

Proposed Action — CHECK ONE
- [x] Drill New Well
- [ ] Deepen
- [ ] Modify

APR 19 2017

WELL REGISTRATION NUMBER (*if Deepening or Modifying*): 55 -

Location of Well

WELL LOCATION ADDRESS (IF ANY):

TOWNSHIP(N/S)	RANGE (E/W)	SECTION	160 ACRE	40 ACRE	10 ACRE
4.0 S	9.0 E	28	SW ¼	NW ¼	SE ¼

COUNTY ASSESSOR'S PARCEL ID NUMBER: BOOK | MAP | PARCEL 1001

COUNTY WHERE WELL IS LOCATED: PINAL

SECTION 2. OWNER INFORMATION

Land Owner
- FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL: AZ State Land Dept (Mineral Lease # 11-026500)
- MAILING ADDRESS: 1616 W Adams St
- CITY / STATE / ZIP CODE: Phoenix, AZ 85007
- CONTACT PERSON NAME AND TITLE: Lisa Atkins, State Land Commissioner
- TELEPHONE NUMBER: (602) 542-4631
- FAX:

Well Owner (*check this box if Land Owner and Well Owner are same* ☐)
- FULL NAME OF COMPANY, GOVERNMENT AGENCY, OR INDIVIDUAL: Florence Copper, Inc.
- MAILING ADDRESS: 1575 W Hunt Hwy
- CITY / STATE / ZIP CODE: Florence, AZ 85132
- CONTACT PERSON NAME AND TITLE: Ian Ream, Senior Hydrogeologist
- TELEPHONE NUMBER: (520) 374-3984
- FAX: (520) 374-3999

SECTION 3. DRILLING AUTHORIZATION

Drilling Firm
- NAME: National EWP
- DWR LICENSE NUMBER: 823
- ROC LICENSE CATEGORY: A-4
- TELEPHONE NUMBER: (480) 558-3500
- FAX: 480-558-3525
- EMAIL ADDRESS: jstephens@nationalewp.com

Consultant (*if applicable*)
- CONSULTING FIRM: Haley & Aldrich, Inc.
- CONTACT PERSON NAME: Mark Nicholls
- TELEPHONE NUMBER: 602-760-2423
- FAX: 602-760-2448
- EMAIL ADDRESS: mnicholls@haleyaldrich.com

SECTION 4.

Questions	Yes	No	Explanation:
1. Are all annular spaces between the casing(s) and the borehole for the placement of grout at least 2 inches?	☒	☐	2-inch annular spaces are special standards required for wells located in and near groundwater contamination sites (such as CERCLA, WQARF, DOD, LUST).
2. Is the screened or perforated interval of casing greater than 100 feet in length?	☒	☐	100-foot maximum screen intervals are a special standard for wells located in and near groundwater contamination sites (such as CERCLA, WQARF, DOD, LUST).
3. Are you requesting a variance to use thermoplastic casing in lieu of steel casing in the surface seal?	☐	☒	The wells must be constructed in a vault. Pursuant to A.A.C. R12-15-801 (27) a "vault" is defined as a tamper-resistant watertight structure used to complete a well below the land surface.
4. Is there another well name or identification number associated with this well? (e.g., MW-1, PZ2, 06-04, etc.)	☒	☐	If yes, please state O-04
5. Have construction plans been coordinated with the Arizona Department of Environmental Quality?	☒	☐	If yes, please state agency contact & phone number David Haag, 602-771-4669
6. For monitor wells, is dedicated pump equipment to be installed?	☐	☒	If yes, please state design pump capacity (*Gallons per Minute*)
7. Is this well a new well located in an Active Management Area AND intended to pump water for the purpose of remediating groundwater?	☐	☒	You must also file a supplemental form A.R.S. § 45-454(c) & (f) unless the well is a replacement well and the total number of operable wells on the site is not increasing. (*See instructions*)
8. Will the well registration number be stamped on the vault cover or on the upper part of the casing?	☒	☐	If no, where will the registration number be placed?

Notice of Intent to Drill, Deepen, or Modify a *Monitor / Piezometer / Environmental* Well

WELL REGISTRATION NUMBER
55 - 227233

SECTION 6. WELL CONSTRUCTION DETAILS

Drill Method

CHECK ONE

- ☐ Air Rotary
- ☐ Bored or Augered
- ☐ Cable Tool
- ☐ Dual Rotary
- ☒ Mud Rotary
- ☐ Reverse Circulation
- ☐ Driven
- ☐ Jetted
- ☐ Air Percussion / Odex Tubing
- ☐ Other (*please specify*):

DATE CONSTRUCTION TO BEGIN
05/01/2017

Method of Well Development

CHECK ONE

- ☒ Airlift
- ☐ Bail
- ☐ Surge Block
- ☐ Surge Pump
- ☐ Other (*please specify*):

Method of Sealing at Reduction Points

CHECK ONE

- ☒ None
- ☐ Welded
- ☐ Swedged
- ☐ Packed
- ☐ Other (*please specify*):

Grout Emplacement Method

CHECK ONE

- ☒ Tremie Pumped *(Recommended)*
- ☐ Gravity
- ☐ Pressure Grout
- ☐ Other (*please specify*):

Surface or Conductor Casing

CHECK ONE

- ☐ Flush Mount in a vault
- ☒ Extends at least 1' above grade

SECTION 7. PROPOSED WELL CONSTRUCTION PLAN (attach additional page if needed)

Attach a well construction diagram labeling all specifications below.

Per driller TW

Borehole

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	BOREHOLE DIAMETER (inches)
0	20	18
20	1210	10

Casing

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	OUTER DIAMETER (inches)	MATERIAL TYPE (T) STEEL	PVC	ABS	IF OTHER TYPE, DESCRIBE	PERFORATION TYPE (T) BLANK OR NONE	WIRE WRAP	SHUTTER SCREEN	MILLS KNIFE	SLOTTED	IF OTHER TYPE, DESCRIBE	SLOT SIZE IF ANY (inches)
0	20	14	☒	☐	☐		☒	☐	☐	☐	☐		
0	500	5	☒	☐	☐	fiberglass reinforced	☒	☐	☐	☐	☐		
500	1200	5	☐	☒	☐		☐	☐	☐	☐	☒		0.020

Annular Material

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	ANNULAR MATERIAL TYPE (T) NONE	CONCRETE	NEAT CEMENT OR CEMENT GROUT	CEMENT-BENTONITE GROUT	BENTONITE GROUT	BENTONITE CHIPS	BENTONITE PELLETS	IF OTHER TYPE OF ANNULAR MATERIAL, DESCRIBE	FILTER PACK SAND	FILTER PACK GRAVEL	FILTER PACK SIZE
0	490	☐	☐	☒	☐	☐	☐	☐		☐	☐	
490	495	☐	☐	☐	☐	☐	☐	☐		☒	☐	No. 30-70
495	1210	☐	☐	☐	☐	☐	☐	☐		☒	☐	No.10-20

IF THIS WELL HAS NESTED CASINGS, SPECIFY NUMBER OF CASING STRINGS

EXPECTED DEPTH TO WATER *(Feet Below Ground Surface)*
220

SECTION 8. PERMISSION TO ACCESS

☐ By checking this box, I hereby provide ADWR permission to enter the property for the purpose of taking water level measurements at this well. *(See instructions.)*

SECTION 9. LAND OWNER AND WELL OWNER SIGNATURE

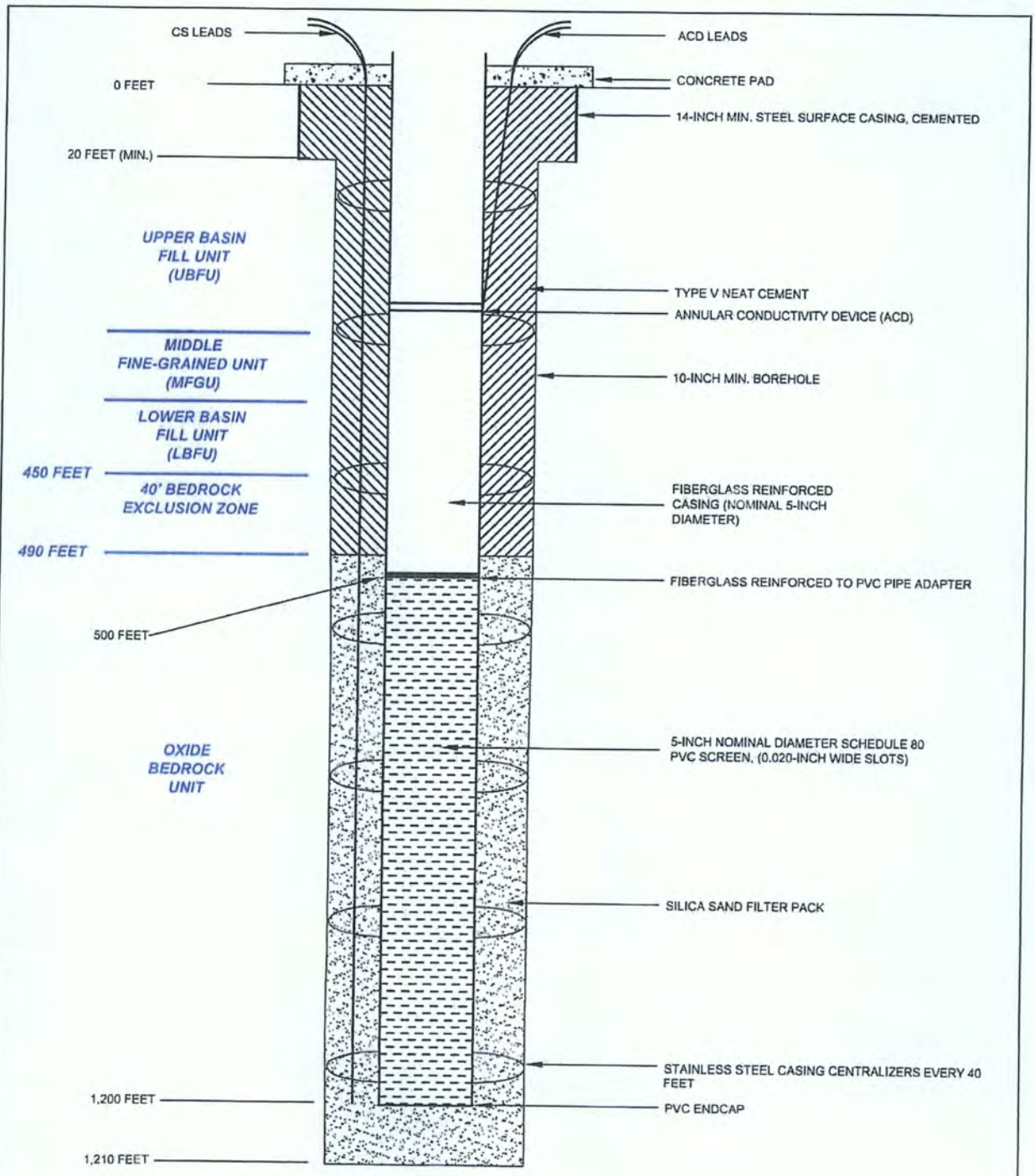
I state that this notice is filed in compliance with A.R.S. § 45-596 and is complete and correct to the best of my knowledge and

Land Owner	Well Owner *(if different from Land Owner; See instructions)*
PRINT NAME AND TITLE	PRINT NAME AND TITLE Ian Ream, Senior Hydrogeologist
SIGNATURE OF LAND OWNER	SIGNATURE OF WELL OWNER
DATE	DATE 4-17-2017
☐ By checking this box, you agree to allow ADWR to contact you via electronic mail.	☒ By checking this box, you agree to allow ADWR to contact you via electronic mail.
EMAIL ADDRESS	EMAIL ADDRESS IanReam@florencecopper.com

SECTION 5. Well Construction Diagram

Provide a well construction diagram showing all existing well construction features listed in Section 6 and Section 7.

See attached well diagram.



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HALEY ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

OBSERVATION WELL CONSTRUCTION DIAGRAM

FLORENCE COPPER INC.

SCALE: NOT TO SCALE

FIGURE 1

Notice of Intent to Drill, Deepen, or Modify a *Monitor / Piezometer / Environmental* Well

WELL REGISTRATION NUMBER 55 -

SECTION 6. WELL CONSTRUCTION DETAILS

Drill Method

CHECK ONE

- ☐ Air Rotary
- ☐ Bored or Augered
- ☐ Cable Tool
- ☐ Dual Rotary
- ☒ Mud Rotary
- ☐ Reverse Circulation
- ☐ Driven
- ☐ Jetted
- ☐ Air Percussion / Odex Tubing
- ☐ Other (*please specify*):

DATE CONSTRUCTION TO BEGIN: 05/01/2017

Method of Well Development

CHECK ONE

- ☒ Airlift
- ☐ Bail
- ☐ Surge Block
- ☐ Surge Pump
- ☐ Other (*please specify*):

Method of Sealing at Reduction Points

CHECK ONE

- ☒ None
- ☐ Welded
- ☐ Swedged
- ☐ Packed
- ☐ Other (*please specify*):

Grout Emplacement Method

CHECK ONE

- ☒ Tremie Pumped *(Recommended)*
- ☐ Gravity
- ☐ Pressure Grout
- ☐ Other (*please specify*):

Surface or Conductor Casing

CHECK ONE

- ☐ Flush Mount in a vault
- ☒ Extends at least 1' above grade

SECTION 7. PROPOSED WELL CONSTRUCTION PLAN (attach additional page if needed)

Attach a well construction diagram labeling all specifications below.

Corrected Page TN

Borehole

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	BOREHOLE DIAMETER (inches)
0	20	18
20	1210	10

Casing

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	OUTER DIAMETER (inches)	MATERIAL TYPE (T) STEEL	PVC	ABS	IF OTHER TYPE, DESCRIBE	PERFORATION TYPE (T) BLANK OR NONE	WIRE WRAP	SHUTTER SCREEN	MILLS KNIFE	SLOTTED	IF OTHER TYPE, DESCRIBE	SLOT SIZE IF ANY (inches)
0	20	14	☒	☐	☐		☒	☐	☐	☐	☐		
0	500	5	☐	☐	☐	FRP	☒	☐	☐	☐	☐		
500	1200	5	☐	☒	☐		☐	☐	☐	☐	☒		0.020

Annular Material

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	ANNULAR MATERIAL TYPE (T) NONE	CONCRETE	NEAT CEMENT OR CEMENT GROUT	CEMENT-BENTONITE GROUT	BENTONITE GROUT	BENTONITE CHIPS	BENTONITE PELLETS	IF OTHER TYPE OF ANNULAR MATERIAL, DESCRIBE	FILTER PACK SAND	FILTER PACK GRAVEL	FILTER PACK SIZE
0	490	☐	☐	☒	☐	☐	☐	☐		☐	☐	
490	495	☐	☐	☐	☐	☐	☐	☐		☒	☐	No. 30-70
495	1210	☐	☐	☐	☐	☐	☐	☐		☒	☐	No.10-20

IF THIS WELL HAS NESTED CASINGS, SPECIFY NUMBER OF CASING STRINGS:

EXPECTED DEPTH TO WATER *(Feet Below Ground Surface)*: 220

SECTION 8. PERMISSION TO ACCESS

☐ By checking this box, I hereby provide ADWR permission to enter the property for the purpose of taking water level measurements at this well. *(See instructions.)*

SECTION 9. LAND OWNER AND WELL OWNER SIGNATURE

I state that this notice is filed in compliance with A.R.S. § 45-596 and is complete and correct to the best of my knowledge and

Land Owner	Well Owner *(if different from Land Owner; See instructions)*
PRINT NAME AND TITLE	PRINT NAME AND TITLE: Ian Ream, Senior Hydrogeologist
SIGNATURE OF LAND OWNER	SIGNATURE OF WELL OWNER
DATE	DATE
☐ By checking this box, you agree to allow ADWR to contact you via electronic mail.	☒ By checking this box, you agree to allow ADWR to contact you via electronic mail.
EMAIL ADDRESS	EMAIL ADDRESS: IanReam@florencecopper.com

Arizona Department of Water Resources
Groundwater Permitting and Wells
PO Box 36020 • Phoenix, Arizona 85067-6020
(602) 771-8527 • 602-771-8500
www.azwater.gov

Well Driller Report and Well Log

THIS REPORT MUST BE FILED WITHIN **30 DAYS** OF COMPLETING THE WELL.

PLEASE PRINT CLEARLY USING BLACK OR BLUE INK

FILE NUMBER: **D(4-9) 28 CBD**
WELL REGISTRATION NUMBER: **55 - 227233**
PERMIT NUMBER (IF ISSUED):

SECTION 1. DRILLING AUTHORIZATION

Drilling Firm

Mail To:

NAME	DWR LICENSE NUMBER
HYDRO RESOURCES - ROCKY MOUNTAIN, INC.	816
ADDRESS: 13027 COUNTY ROAD 18, UNIT C	TELEPHONE NUMBER: 303-857-7540
CITY / STATE / ZIP: FORT LUPTON, CO, 80621-9217	FAX

SECTION 1. REGISTRY INFORMATION

Well Owner

FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL: AZ STATE LAND DEPT.

MAILING ADDRESS: 1616 W. ADAMS ST.

CITY / STATE / ZIP: PHOENIX, AZ, 85007

CONTACT PERSON NAME AND TITLE:

TELEPHONE NUMBER: 602 542-4631

FAX:

WELL NAME (e.g., MW-1, PZ-3, lot 25 Well, Smith Well, etc.): O-04

Location of Well

WELL LOCATION ADDRESS (IF ANY):

TOWNSHIP (N/S)	RANGE (E/W)	SECTION	160 ACRE 1/4	40 ACRE 1/4	10 ACRE 1/4

LATITUDE ° DEGREES	' MINUTES	"N SECONDS	LONGITUDE ° DEGREES	' MINUTES	"W SECONDS

METHOD OF LATITUDE/LONGITUDE (CHECK ONE)
☐ *GPS: Hand-Held ☐ Conventional Survey ☐ *GPS: Survey-Grade

LAND SURFACE ELEVATION AT WELL: Feet Above Sea Level

METHOD OF ELEVATION (CHECK ONE)
☐ *GPS: Hand-Held ☐ Conventional Survey ☐ *GPS: Survey-Grade

*IF GPS WAS USED, GEOGRAPHIC COORDINATE DATUM (CHECK ONE)
☐ NAD-83 ☐ Other (please specify)

COUNTY:

ASSESSOR'S PARCEL ID NUMBER (MOST RECENT)

BOOK	MAP	PARCEL

SECTION 3. WELL CONSTRUCTION DETAILS

Drilling Method

CHECK ONE
☐ Air Rotary
☐ Bored or Augered
☐ Cable Tool
☐ Dual Rotary
☐ Mud Rotary
☐ Reverse Circulation
☐ Driven
☐ Jetted
☐ Air Percussion / Odex Tubing
☐ Other (please specify)

Method of Well Development

CHECK ONE
☐ Airlift
☐ Bail
☐ Surge Block
☐ Surge Pump
☐ Other (please specify)

Condition of Well

CHECK ONE
☐ Capped
☐ Pump Installed

Method of Sealing at Reduction Points

CHECK ONE
☐ None
☐ Packed
☐ Swedged
☐ Welded
☐ Other (please specify)

Construction Dates

DATE WELL CONSTRUCTION STARTED:

DATE WELL CONSTRUCTION COMPLETED:

I state that this notice is filed in compliance with A.R.S. § 45-596 and is complete and correct to the best of my knowledge and belief.

SIGNATURE OF QUALIFYING PARTY	DATE

Well Driller Report and Well Log

WELL REGISTRATION NUMBER
55 - 227233

SECTION 4. WELL CONSTRUCTION DESIGN (AS BUILD) (attach additional page if needed)

Depth

DEPTH OF BORING (Feet Below Land Surface)	DEPTH OF COMPLETED WELL (Feet Below Land Surface)

Water Level Information

STATIC WATER LEVEL (Feet Below Land Surface)	DATE MEASURED	TIME MEASURED	IF FLOWING WELL, METHOD OF FLOW REGULATION
			☐ Valve ☐ Other:

Borehole

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	BOREHOLE DIAMETER (inches)

Installed Casing

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	OUTER (inches)	MATERIAL TYPE (X) STEEL	PVC	ABS	IF OTHER TYPE, DESCRIBE	PERFORATION TYPE (X) BLANK OR NONE	WIRE WRAP	SHUTTER SCREEN	MILLS KNIFE	SLOTTED	IF OTHER TYPE, DESCRIBE	SLOT SIZE (inches)

Installed Annular Material

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	ANNULAR MATERIAL TYPE (X) NONE	CONCRETE	NEAT CEMENT OR CEMENT GROUT	CEMENT-BENTONITE GROUT	BENTONITE GROUT	BENTONITE CHIPS	BENTONITE PELLETS	IF OTHER TYPE OF ANNULAR MATERIAL, DESCRIBE	FILTER PACK SAND	FILTER PACK GRAVEL	FILTER PACK SIZE

Well Driller Report and Well Log

WELL REGISTRATION NUMBER
55 - 227233

SECTION 5. GEOLOGIC LOG OF WELL

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	**Description** Describe material, grain size, color, etc.	Check (X) every interval where water was encountered (if known)

Well Driller Report and Well Log

WELL REGISTRATION NUMBER
55 - 227233

SECTION 6. WELL SITE PLAN

NAME OF WELL OWNER	COUNTY ASSESSOR'S PARCEL ID NUMBER (MOST RECENT)		
	BOOK	MAP	PARCEL
AZ STATE LAND DEPT.			

- Required for all wells, please draw the following: (1) the boundaries of property on which the well was located; (2) the well location; (3) the locations of all septic tank systems and sewer systems on the property or within 100 feet of the well location, even if on neighboring properties; and (4) any permanent structures on the property that may aid in locating the well.
- Please indicate the distance between the well location and any septic tank system or sewer system.

Arizona Department of Water Resources
Groundwater Permitting and Wells Section
P.O. Box 36020 Phoenix, Arizona 85067-6020
(602) 771-8527 • www.azwater.gov

Request to Change Well Information

- Review instructions prior to completing form in black or blue ink.
- You must include with your Notice:
  - check or money order for any required fee(s)
- Authority for fee: A.R.S. § 45-113 and A.A.C. R12-15-104

** PLEASE PRINT CLEARLY **

Well ID: O-04

FILE NUMBER

WELL REGISTRATION NUMBER
55 - 227233

SECTION 1. REGISTRY INFORMATION

Well Owner

FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL
Florence Copper Company

MAILING ADDRESS
1575 W Hunt Hwy

CITY / STATE / ZIP CODE
Florence, AZ 85132

CONTACT PERSON NAME AND TITLE
Ian Ream, Senior Hydrogeologist

TELEPHONE NUMBER: 520-374-3984
FAX: 520-374-3999

Location of Well

WELL LOCATION ADDRESS (IF ANY) / OR CROSS STREETS

TOWNSHIP (N/S)	RANGE (E/W)	SECTION	160 ACRE	40 ACRE	10 ACRE
4.0 S	9.0 E	28	SW ¼	NW ¼	SE ¼

LATITUDE			LONGITUDE		
33 ° Degrees	2 ' Minutes	59.29 "N Seconds	111 ° Degrees	26 ' Minutes	3.87 "W Seconds

METHOD OF LATITUDE/LONGITUDE (CHECK ONE) ☐ *GPS: Hand-Held ☐ Google Earth ☐ Conventional Survey ☐ *GPS: Survey-Grade

*IF GPS WAS USED, GEOGRAPHIC COORDINATE DATUM (CHECK ONE) ☐ NAD-83 ☐ Other (*please specify*):

COUNTY ASSESSOR'S PARCEL ID NUMBER — BOOK | MAP | PARCEL: 1001

COUNTY WHERE WELL IS LOCATED: PINAL

Type of Request (CHECK ONE)

☒ Change of Well Drilling Contractor *(Fill out Section 2)* ☐ Change of Well Ownership *(Fill out Section 3)* ☐ Change of Well Information (location, use, etc.) *(Fill out Section 4)*

SECTION 2. REQUEST TO CHANGE WELL DRILLING CONTRACTOR

FEE $120 per Well

- If drilling or abandoning a well, the Department must receive this request and issue authorization to the new drilling firm PRIOR TO the commencement of well drilling or abandonment.

Current Well Drilling Contractor

FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL
National EWP

DWR LICENSE NUMBER
823

TELEPHONE NUMBER: (480) 558-3500
FAX: (480) 558-3525

New Well Drilling Contractor

FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL
HydroResources

DWR LICENSE NUMBER: 816
ROC LICENSE CATEGORY: A-4

TELEPHONE NUMBER: (303) 857-7540
FAX:

SECTION 3. STATEMENT OF CHANGE OF WELL OWNERSHIP

FEE $30 per Well

Previous Well Owner

FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL

MAILING ADDRESS

CITY / STATE / ZIP CODE

CONTACT PERSON NAME AND TITLE

TELEPHONE NUMBER | FAX

New Well Owner

FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL

MAILING ADDRESS

CITY / STATE / ZIP CODE

CONTACT PERSON NAME AND TITLE

TELEPHONE NUMBER | FAX

RECEIVED
FEB 16 2018
ARIZONA DEPARTMENT OF WATER RESOURCES

SECTION 4. CHANGE OF WELL INFORMATION (No Fee Required)

NOTE: Applies only to wells that have already been drilled. For proposed wells, an amended Notice of Intent to Drill a Well must be filed.

EXPLAIN

SECTION 5. OPTIONAL BY PROPERTY OWNER AND WELL OWNER ONLY

☐ By checking this box, I hereby provide ADWR permission to enter the property for the purpose of taking water level measurements at this well. *(See instructions.)*

SECTION 6. WELL OWNER SIGNATURE

I HEREBY CERTIFY that the above statements are true to the best of my knowledge and belief.

TYPE OR PRINT NAME AND TITLE
Ian Ream, Senior Hydrogeologist

SIGNATURE OF WELL OWNER

DATE: 2-14-2018

Printed: 2/16/2018 9:53:20 AM

Arizona Department of Water Resources

1110 West Washington Street, Suite 310
Phoenix AZ 85007

Customer:
LINDA L. DOMBRAWSKI
70 BLANCHARD ROAD SUITE 204
BURLINGTON, MA 01803

Receipt #: 18-56793
Office: Engineering and Peri
Receipt Date: 02/16/2018
Sale Type: Mail
Cashier: WRPXA

Item No.	Function Code	AOBJ	Description	Ref ID	Qty	Unit Price	Ext Price
91	WRFREV	4439-12	CHANGE OF WELL DRILLER CONTRACTOR OR REISSUE		3	120.00	360.00
					RECEIPT TOTAL:		**360.00**

Payment type: CREDIT CARD
Amount Paid: $360.00
Payment Received Date: 02/16/2018

Authorization 011621

Notes: Credit Card Payment for $360.00 is for well registration number 55-227231, 55-227233 and 55-227235

No refund without valid receipt

Run Date: 04/25/2017

AZ DEPARTMENT OF WATER RESOURCES

WELL REGISTRY REPORT - WELLS55

Location D 4.0 9.0 28 C B D

Well Reg.No 55 - 227233

AMA PINAL AMA

Registered Name AZ STATE LAND DEPT.
1616 W. ADAMS ST.
ATTN: LISA ATKINS
PHOENIX AZ 85007

File Type NEW WELLS (INTENTS OR APPLICATIONS)
Application/Issue Date 04/19/2017

Owner OWNER
Driller No. 823
Driller Name NATIONAL EWP, INC.
Driller Phone 480-558-3500
County PINAL

Intended Capacity GPM 0.00

Well Type ENV - MONITOR
SubBasin ELOY
Watershed UPPER GILA RIVER
Registered Water Uses MONITORING
Registered Well Uses MONITOR
Discharge Method NO DISCHARGE METHOD LISTED
Power NO POWER CODE LISTED

Well Depth	0.00	**Case Diam**	0.00	**Tested Cap**	0.00
Pump Cap.	0.00	**Case Depth**	0.00	**CRT**	
Draw Down	0.00	**Water Level**	0.00	**Log**	
		Acres Irrig	0.00	**Finish**	NO CASING CODE LISTED

Contamination Site: NO - NOT IN ANY REMEDIAL ACTION SITE

Tribe: Not in a tribal zone

Comments Well O-04
AZ State Land Dept. Mineral Lease #11-026500

Current Action

4/25/2017 555 DRILLER & OWNER PACKETS MAILED
Action Comment: TNV

Action History

4/25/2017 550 DRILLING AUTHORITY ISSUED
Action Comment: TNV

4/19/2017 155 NOI RECEIVED FOR A NEW NON-PRODUCTION WELL
Action Comment: TNV

ARIZONA DEPARTMENT OF WATER RESOURCES

1110 W. Washington St. Suite 310
Phoenix, Arizona 85007

THIS AUTHORIZATION SHALL BE IN POSSESSION OF THE DRILLER DURING ALL DRILLING OPERATIONS

WELL REGISTRATION NO: **55-227233** WELL OWNER ID: O-04

AUTHORIZED DRILLER: **NATIONAL EWP, INC.** LICENSE NO: **823**

NOTICE OF INTENTION TO DRILL ENV - MONITOR WELL(S) HAS BEEN FILED WITH THE DEPARTMENT BY:

WELL OWNER: **AZ STATE LAND DEPT. 1616 W. ADAMS ST. ATTN: LISA ATKINS PHOENIX, AZ, 85007**

THE WELL(S) IS/ARE TO BE LOCATED IN THE:

SE 1/4 of the **NW** 1/4 of the **SW** 1/4 Section **28** Township **4.0** **SOUTH** Range **9.0** **EAST**

NO. OF WELLS IN THIS PROJECT:

THIS AUTHORIZATION EXPIRES AT MIDNIGHT ON THE DAY OF **April 19, 2018**

Stella Murillo

GROUNDWATER PERMITTING AND WELLS

THE DRILLER MUST FILE A LOG OF THE WELL WITHIN 30 DAYS OF COMPLETION OF DRILLING.

GREAT SEAL OF THE STATE OF ARIZONA
DITAT DEUS
1912

ARIZONA DEPARTMENT of WATER RESOURCES
1110 W. Washington St. Suite 310
Phoenix, AZ 85007
602-771-8500
azwater.gov

April 25, 2017

AZ STATE LAND DEPT.
1616 W. ADAMS ST.
ATTN: LISA ATKINS
PHOENIX, AZ 85007

DOUGLAS A. DUCEY
Governor

THOMAS BUSCHATZKE
Director

Registration No. 55- 227233
File Number: D(4-9) 28 CBD

Dear Well Applicant:

Enclosed is a copy of the Notice of Intention to Drill (NOI) a well which you or your driller recently filed with the Department of Water Resources. This letter is to inform you that the Department has approved the NOI and has mailed, or made available for download, a drilling authorization card to your designated well drilling contractor. The driller may not begin drilling until he/she has received the authorization, and must keep it in their possession at the well site during drilling. Although the issuance of this drill card authorizes you to drill the proposed well under state law, the drilling of the well may be subject to restrictions or regulations imposed by other entities.

Well drilling activities must be completed within one year after the date the NOI was filed with the Department. If drilling is not completed within one year, a new NOI must be filed and authorization from this Department received before proceeding with drilling. If the well cannot be successfully completed as initially intended (dry hole, cave in, lost tools, etc.), the well must be properly abandoned and a Well Abandonment Completion Report must be filed by your driller [as required by A.A.C. R12-15-816(F)].

If you change drillers, you must notify the Department of the new driller's identity on a Request to Change Well Information (form 55-71A). Please ensure that the new driller is licensed by the Department to drill the type of well you require. A new driller may not begin drilling until he/she receives a new drilling authorization card from the Department.

If you find it necessary to change the location of the proposed well(s), you may not proceed with drilling until you file an amended NOI with the Department. An amended drilling authorization card will then be issued to the well drilling contractor, which must be in their possession before drilling begins.

Arizona statute [A.R.S. § 45-600] requires registered well owners to file a Pump Installation Completion Report (form 55-56) with the Department within 30 days after the installation of pumping equipment, if authorized. A blank report is enclosed for your convenience. State statute also requires the driller to file a complete and accurate Well Drillers Report and Well Log (form 55-55) within 30 days after completion of drilling. A blank report form was provided to your driller with the drilling authorization card. You should insist and ensure that all of the required reports are accurately completed and timely filed with the Department.

Please be advised that Arizona statute [A.R.S. § 45-593(C)] requires a registered well owner to notify the Department of a change in ownership of the well and/or information pertaining to the physical characteristics of the well in order to keep this well registration file current and accurate. Any change in well information or a request to change well driller must be filed on a Request to Change Well Information form (form 55-71A) that may be downloaded from the ADWR Internet website at www.azwater.gov.

Sincerely,

Groundwater Permitting and Wells Section

Arizona Department of Water Resources
Groundwater Permitting and Wells Section
P.O. Box 36020 Phoenix, Arizona 85067-6020
(602) 771-8500 • (602) 771-8690
· www.azwater.gov ·

Notice of Intent to Drill, Deepen, or Modify a *Monitor / Piezometer / Environmental* Well

$150 FEE

- Review instructions prior to completing form in black or blue ink.
- You must include with your Notice:
  - $150 check or money order for the filing fee.
  - Well construction diagram, labeling all specifications listed in Section 6 and Section 7.

  Authority for fee: A.R.S. § 45-596 and A.A.C. R12-15-104.

AMA / INA	B	SB
Pinal	PIN	11
RECEIVED DATE	WS	
4/19/2017	OB UGR	
ISSUED DATE	REMEDIAL ACTION SITE	
4/25/2017	000 —	

FILE NUMBER: D(4-9)28CBD
WELL REGISTRATION NUMBER: 55 - 227253

SECTION 1. REGISTRY INFORMATION

To determine the location of well, please refer to the Well Registry Map (https://gisweb.azwater.gov/WellRegistry/Default.aspx) and/or Google Earth (http://www.earthpoint.us/Townships.aspx)

Well Type (CHECK ONE)
- ☒ Monitor
- ☐ Piezometer
- ☐ Vadose Zone
- ☐ Air Sparging
- ☐ Soil Vapor Extraction
- ☐ Other (*please specify*):

Proposed Action (CHECK ONE)
- ☒ Drill New Well
- ☐ Deepen
- ☐ Modify

APR 19 2017

WELL REGISTRATION NUMBER (*if Deepening or Modifying*): 55 -

Location of Well

WELL LOCATION ADDRESS (IF ANY):

TOWNSHIP(N/S)	RANGE (E/W)	SECTION	160 ACRE	40 ACRE	10 ACRE
4.0 S	9.0 E	28	SW ¼	NW ¼	SE ¼

COUNTY ASSESSOR'S PARCEL ID NUMBER: BOOK | MAP | PARCEL 1001

COUNTY WHERE WELL IS LOCATED: PINAL

SECTION 2. OWNER INFORMATION

Land Owner

FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL: AZ State Land Dept (Mineral Lease # 11-026500)
MAILING ADDRESS: 1616 W Adams St
CITY / STATE / ZIP CODE: Phoenix, AZ 85007
CONTACT PERSON NAME AND TITLE: Lisa Atkins, State Land Commissioner
TELEPHONE NUMBER: (602) 542-4631 FAX:

Well Owner (*check this box if Land Owner and Well Owner are same* ☐)

FULL NAME OF COMPANY, GOVERNMENT AGENCY, OR INDIVIDUAL: Florence Copper, Inc.
MAILING ADDRESS: 1575 W Hunt Hwy
CITY / STATE / ZIP CODE: Florence, AZ 85132
CONTACT PERSON NAME AND TITLE: Ian Ream, Senior Hydrogeologist
TELEPHONE NUMBER: (520) 374-3984 FAX: (520) 374-3999

SECTION 3. DRILLING AUTHORIZATION

Drilling Firm

NAME: National EWP
DWR LICENSE NUMBER: 823 ROC LICENSE CATEGORY: A-4
TELEPHONE NUMBER: (480) 558-3500 FAX: 480-558-3525
EMAIL ADDRESS: jstephens@nationalewp.com

Consultant (*if applicable*)

CONSULTING FIRM: Haley & Aldrich, Inc.
CONTACT PERSON NAME: Mark Nicholls
TELEPHONE NUMBER: 602-760-2423 FAX: 602-760-2448
EMAIL ADDRESS: mnicholls@haleyaldrich.com

SECTION 4.

Questions	Yes	No	Explanation:
1. Are all annular spaces between the casing(s) and the borehole for the placement of grout at least 2 inches?	☒	☐	2-inch annular spaces are special standards required for wells located in and near groundwater contamination sites (such as CERCLA, WQARF, DOD, LUST).
2. Is the screened or perforated interval of casing greater than 100 feet in length?	☒	☐	100-foot maximum screen intervals are a special standard for wells located in and near groundwater contamination sites (such as CERCLA, WQARF, DOD, LUST).
3. Are you requesting a variance to use thermoplastic casing in lieu of steel casing in the surface seal?	☐	☒	The wells must be constructed in a vault. Pursuant to A.A.C. R12-15-801 (27) a "vault" is defined as a tamper-resistant watertight structure used to complete a well below the land surface.
4. Is there another well name or identification number associated with this well? (e.g., MW-1, PZ2, 06-04, etc.)	☒	☐	If yes, please state O-04
5. Have construction plans been coordinated with the Arizona Department of Environmental Quality?	☒	☐	If yes, please state agency contact & phone number David Haag, 602-771-4669
6. For monitor wells, is dedicated pump equipment to be installed?	☐	☒	If yes, please state design pump capacity (*Gallons per Minute*)
7. Is this well a new well located in an Active Management Area **AND** intended to pump water for the purpose of remediating groundwater?	☐	☒	You must also file a supplemental form A.R.S. § 45-454(c) & (f) unless the well is a replacement well and the total number of operable wells on the site is not increasing. (*See instructions*)
8. Will the well registration number be stamped on the vault cover or on the upper part of the casing?	☒	☐	If no, where will the registration number be placed?

Notice of Intent to Drill, Deepen, or Modify a *Monitor / Piezometer / Environmental* Well

WELL REGISTRATION NUMBER
55 - 227253

SECTION 6. WELL CONSTRUCTION DETAILS

Drill Method
CHECK ONE
- ☐ Air Rotary
- ☐ Bored or Augered
- ☐ Cable Tool
- ☐ Dual Rotary
- ☒ Mud Rotary
- ☐ Reverse Circulation
- ☐ Driven
- ☐ Jetted
- ☐ Air Percussion / Odex Tubing
- ☐ Other *(please specify)*:

DATE CONSTRUCTION TO BEGIN
05/01/2017

Method of Well Development
CHECK ONE
- ☒ Airlift
- ☐ Bail
- ☐ Surge Block
- ☐ Surge Pump
- ☐ Other *(please specify)*:

Grout Emplacement Method
CHECK ONE
- ☒ Tremie Pumped *(Recommended)*
- ☐ Gravity
- ☐ Pressure Grout
- ☐ Other *(please specify)*:

Method of Sealing at Reduction Points
CHECK ONE
- ☒ None
- ☐ Welded
- ☐ Swedged
- ☐ Packed
- ☐ Other *(please specify)*:

Surface or Conductor Casing
CHECK ONE
- ☐ Flush Mount in a vault
- ☒ Extends at least 1' above grade

SECTION 7. PROPOSED WELL CONSTRUCTION PLAN (attach additional page if needed)

Attach a well construction diagram labeling all specifications below.

Borehole / Casing

Borehole: DEPTH FROM SURFACE FROM (feet)	Borehole: DEPTH FROM SURFACE TO (feet)	Borehole: BOREHOLE DIAMETER (inches)	Casing: DEPTH FROM SURFACE FROM (feet)	Casing: DEPTH FROM SURFACE TO (feet)	Casing: OUTER DIAMETER (inches)	MATERIAL TYPE (T): STEEL	MATERIAL TYPE (T): PVC	MATERIAL TYPE (T): ABS	MATERIAL TYPE (T): IF OTHER TYPE, DESCRIBE	PERFORATION TYPE (T): BLANK OR NONE	PERFORATION TYPE (T): WIRE WRAP	PERFORATION TYPE (T): SHUTTER SCREEN	PERFORATION TYPE (T): MILLS KNIFE	PERFORATION TYPE (T): SLOTTED	PERFORATION TYPE (T): IF OTHER TYPE, DESCRIBE	SLOT SIZE IF ANY (inches)
0	20	18	0	20	14	☒	☐	☐		☒	☐	☐	☐	☐		
20	1210	10	0	500	5	☒	☐	☐	fiberglass reinforced	☒	☐	☐	☐	☐		
			500	1200	5	☐	☒	☐		☐	☐	☐	☐	☒		0.020

Per Driller IW

Annular Material

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	ANNULAR MATERIAL TYPE (T): NONE	CONCRETE	NEAT CEMENT OR CEMENT GROUT	CEMENT-BENTONITE GROUT	BENTONITE: GROUT	BENTONITE: CHIPS	BENTONITE: PELLETS	IF OTHER TYPE OF ANNULAR MATERIAL, DESCRIBE	FILTER PACK: SAND	FILTER PACK: GRAVEL	FILTER PACK: SIZE
0	490	☐	☐	☒	☐	☐	☐	☐		☐	☐	
490	495	☐	☐	☐	☐	☐	☐	☐		☒	☐	No. 30-70
495	1210	☐	☐	☐	☐	☐	☐	☐		☒	☐	No.10-20

IF THIS WELL HAS NESTED CASINGS, SPECIFY NUMBER OF CASING STRINGS

EXPECTED DEPTH TO WATER *(Feet Below Ground Surface)*: 220

SECTION 8. PERMISSION TO ACCESS

☐ By checking this box, I hereby provide ADWR permission to enter the property for the purpose of taking water level measurements at this well. *(See instructions.)*

SECTION 9. LAND OWNER AND WELL OWNER SIGNATURE

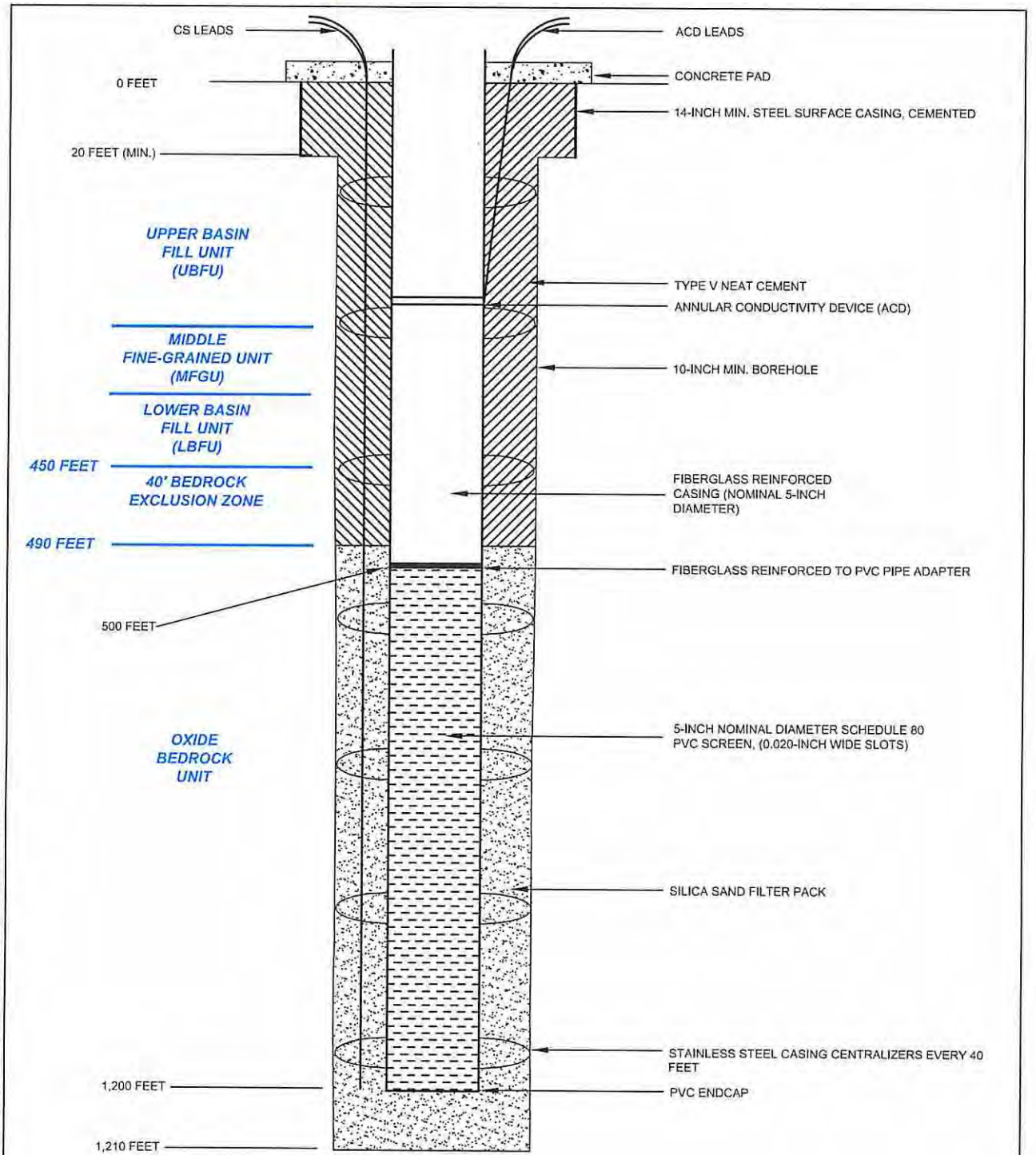
I state that this notice is filed in compliance with A.R.S. § 45-596 and is complete and correct to the best of my knowledge and

Land Owner	Well Owner *(if different from Land Owner; See instructions)*
PRINT NAME AND TITLE	PRINT NAME AND TITLE: Ian Ream, Senior Hydrogeologist
SIGNATURE OF LAND OWNER	SIGNATURE OF WELL OWNER
DATE	DATE: 4-17-2017
☐ By checking this box, you agree to allow ADWR to contact you via electronic mail.	☒ By checking this box, you agree to allow ADWR to contact you via electronic mail.
EMAIL ADDRESS	EMAIL ADDRESS: IanReam@florencecopper.com

SECTION 5. Well Construction Diagram

Provide a well construction diagram showing all existing well construction features listed in Section 6 and Section 7.

See attached well diagram.



G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\DRAWINGS\2014 UIC APP\FIGURES MM-3.DWG

HALEY ALDRICH

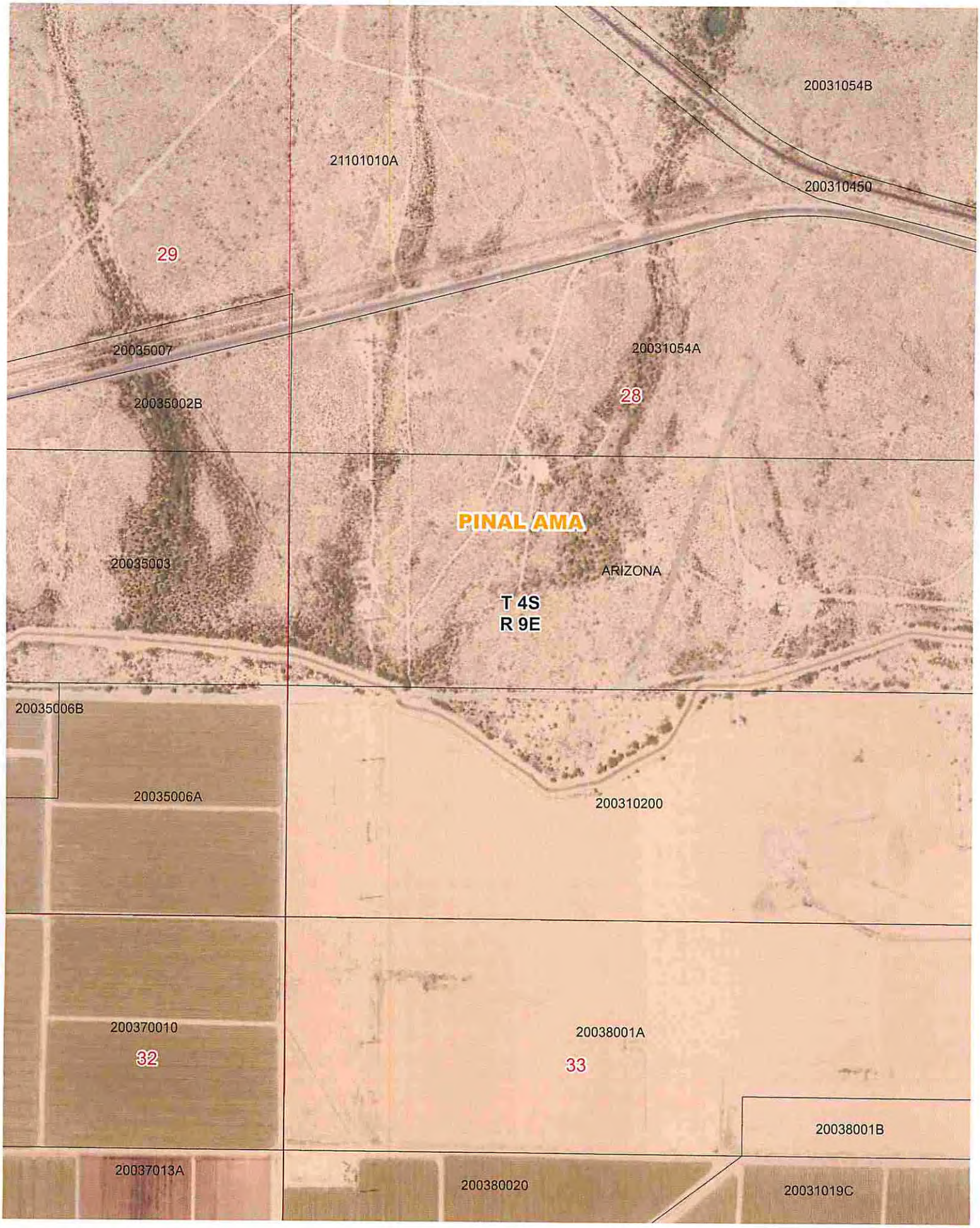
FLORENCE COPPER, INC.
FLORENCE, ARIZONA

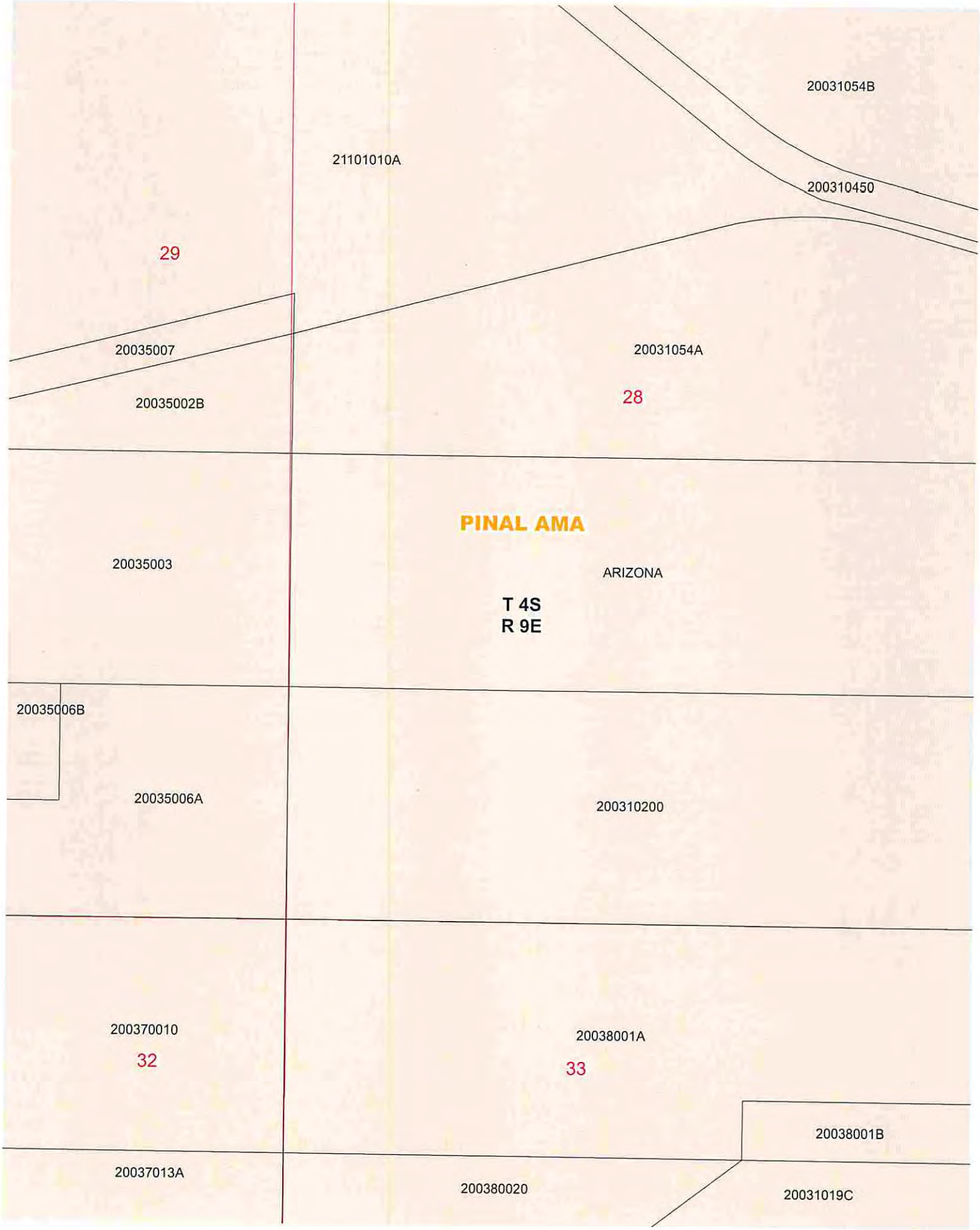
OBSERVATION WELL CONSTRUCTION DIAGRAM

FLORENCE COPPER INC.

SCALE: NOT TO SCALE

FIGURE 1


20031054B
21101010A
200310450
29
20035007
20031054A
20035002B
28
PINAL AMA
20035003
ARIZONA
T 4S
R 9E
20035006B
20035006A
200310200
200370010
32
20038001A
33
20038001B
20037013A
200380020
20031019C


20031054B
21101010A
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29
20035007
20031054A
20035002B
28
PINAL AMA
20035003
ARIZONA
T 4S
R 9E
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20035006A
200310200
200370010
20038001A
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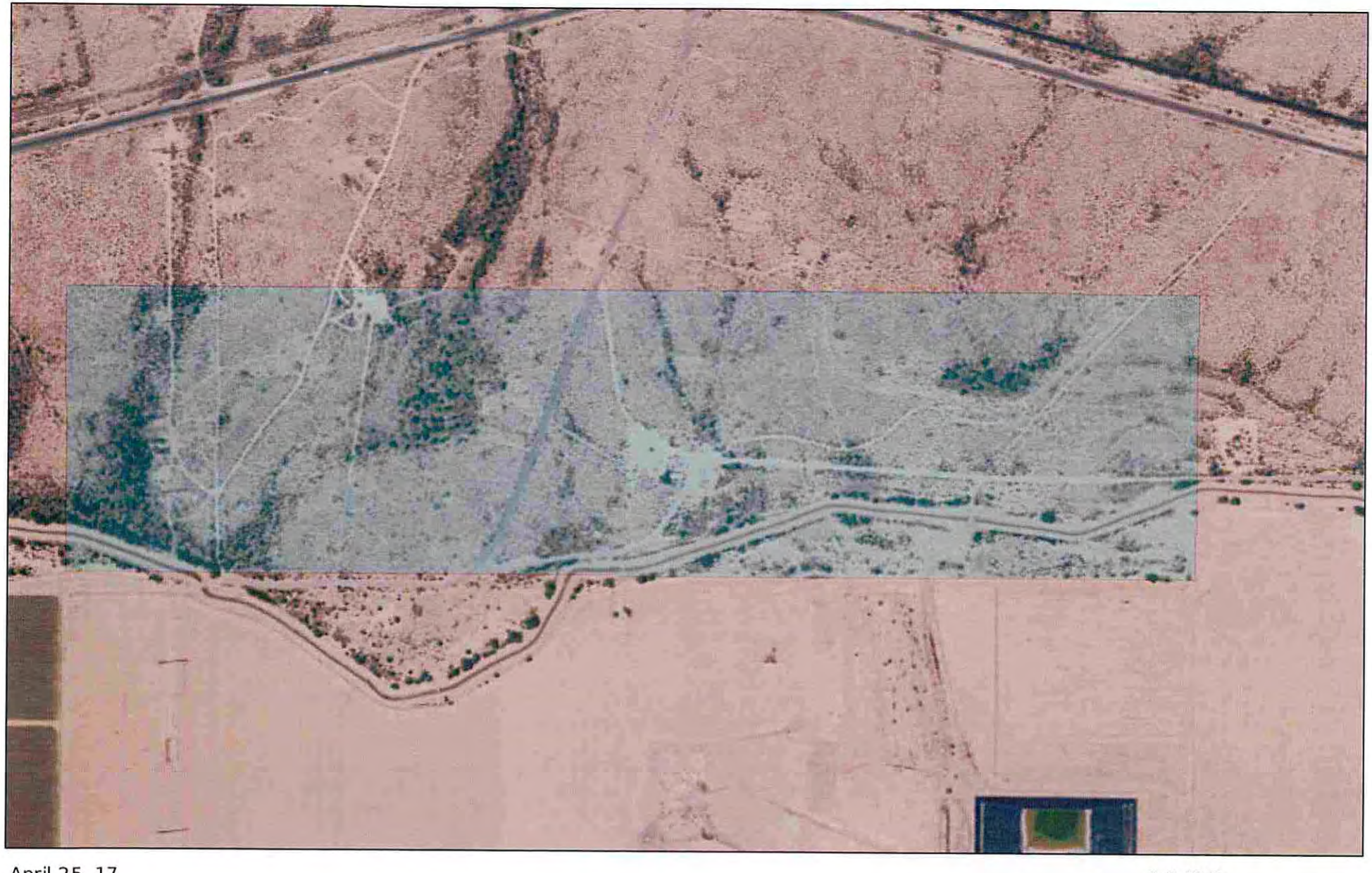
33
20038001B
20037013A
200380020
20031019C

Arizona State Land Department



April 25, 17

1:9,028

0 0.075 0.15 0.3 mi

0 0.1 0.2 0.4 km

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User

Torren Valdez

From: Justina Speas <jspeas@nationalewp.com>
Sent: Wednesday, April 26, 2017 10:10 AM
To: Torren Valdez
Subject: FW: ADWR Issue
Attachments: Rev_pg3_FRP.pdf

Please see below.

Thank you,

Justina Speas
Office Manager
National EWP, Inc.
1200 W. San Pedro St.
Gilbert, AZ 85233
480-558-3500 PH
480-798-4722 CL
480-558-3525 FX
jspeas@nationalewp.com

From: Candreva, Lauren [mailto:LCandreva@haleyaldrich.com]
Sent: Wednesday, April 26, 2017 10:05 AM
To: Justina Speas <jspeas@nationalewp.com>
Cc: Ian Ream <IanReam@florencecopper.com>
Subject: RE: ADWR Issue

Hi Justina,
Please see the attached pg 3 of the NOI form, this form will be the same for all 7 wells since it does not contain any of the well names or locations. However, it is also the page that has the signatureblock, so please confirm with your ADWR contact that it will not require a signature to complete this file.
Thanks,
Lauren

From: Justina Speas [mailto:jspeas@nationalewp.com]
Sent: Tuesday, April 25, 2017 2:09 PM
To: Candreva, Lauren <LCandreva@haleyaldrich.com>
Cc: Ian Ream <IanReam@florencecopper.com>
Subject: ADWR Issue

Good Afternoon,

I just spoke with Torren Valdez with ADWR, and he informed me of an error with some of the NOI's we just turned in. On O-01 through O-07 the well construction plan shows 0 to 500' as steel, but that is not what the diagram shows.

He said we can just fix the page with the construction plan and email him a copy, and he will put it with the file.

Justina Speas
Office Manager

National EWP, Inc.
1200 W. San Pedro St.
Gilbert, AZ 85233
480-558-3500 PH
480-798-4722 CL
480-558-3525 FX
jspeas@nationalewp.com

Notice of Intent to Drill, Deepen, or Modify a *Monitor / Piezometer / Environmental* Well

WELL REGISTRATION NUMBER
55 -

SECTION 6. WELL CONSTRUCTION DETAILS

Drill Method

CHECK ONE

- ☐ Air Rotary
- ☐ Bored or Augered
- ☐ Cable Tool
- ☐ Dual Rotary
- ☒ Mud Rotary
- ☐ Reverse Circulation
- ☐ Driven
- ☐ Jetted
- ☐ Air Percussion / Odex Tubing
- ☐ Other (*please specify*):

DATE CONSTRUCTION TO BEGIN
05/01/2017

Method of Well Development

CHECK ONE

- ☒ Airlift
- ☐ Bail
- ☐ Surge Block
- ☐ Surge Pump
- ☐ Other (*please specify*):

Grout Emplacement Method

CHECK ONE

- ☒ Tremie Pumped *(Recommended)*
- ☐ Gravity
- ☐ Pressure Grout
- ☐ Other (*please specify*):

Method of Sealing at Reduction Points

CHECK ONE

- ☒ None
- ☐ Welded
- ☐ Swedged
- ☐ Packed
- ☐ Other (*please specify*):

Surface or Conductor Casing

CHECK ONE

- ☐ Flush Mount in a vault
- ☒ Extends at least 1' above grade

SECTION 7. PROPOSED WELL CONSTRUCTION PLAN (attach additional page if needed)

Attach a well construction diagram labeling all specifications below.

Corrected Page 1 of 1

Borehole

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	BOREHOLE DIAMETER (inches)
0	20	18
20	1210	10

Casing

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	OUTER DIAMETER (inches)	MATERIAL TYPE (T) STEEL	PVC	ABS	IF OTHER TYPE, DESCRIBE	PERFORATION TYPE (T) BLANK OR NONE	WIRE WRAP	SHUTTER SCREEN	MILLS KNIFE	SLOTTED	IF OTHER TYPE, DESCRIBE	SLOT SIZE IF ANY (inches)
0	20	14	☒	☐	☐		☒	☐	☐	☐	☐		
0	500	5	☐	☐	☐	FRP	☒	☐	☐	☐	☐		
500	1200	5	☐	☒	☐		☐	☐	☐	☐	☒		0.020

Annular Material

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	ANNULAR MATERIAL TYPE (T) NONE	CONCRETE	NEAT CEMENT OR CEMENT GROUT	CEMENT-BENTONITE GROUT	BENTONITE GROUT	BENTONITE CHIPS	BENTONITE PELLETS	IF OTHER TYPE OF ANNULAR MATERIAL, DESCRIBE	FILTER PACK SAND	FILTER PACK GRAVEL	FILTER PACK SIZE
0	490	☐	☐	☒	☐	☐	☐	☐		☐	☐	
490	495	☐	☐	☐	☐	☐	☐	☐		☒	☐	No. 30-70
495	1210	☐	☐	☐	☐	☐	☐	☐		☒	☐	No.10-20

IF THIS WELL HAS NESTED CASINGS, SPECIFY NUMBER OF CASING STRINGS

EXPECTED DEPTH TO WATER *(Feet Below Ground Surface)*
220

SECTION 8. PERMISSION TO ACCESS

☐ By checking this box, I hereby provide ADWR permission to enter the property for the purpose of taking water level measurements at this well. *(See instructions.)*

SECTION 9. LAND OWNER AND WELL OWNER SIGNATURE

I state that this notice is filed in compliance with A.R.S. § 45-596 and is complete and correct to the best of my knowledge and

Land Owner	Well Owner *(if different from Land Owner; See instructions)*
PRINT NAME AND TITLE	PRINT NAME AND TITLE Ian Ream, Senior Hydrogeologist
SIGNATURE OF LAND OWNER	SIGNATURE OF WELL OWNER
DATE	DATE
☐ By checking this box, you agree to allow ADWR to contact you via electronic mail.	☒ By checking this box, you agree to allow ADWR to contact you via electronic mail.
EMAIL ADDRESS	EMAIL ADDRESS IanReam@florencecopper.com

Torren Valdez

From: Robert Harding <RHarding@azland.gov>
Sent: Tuesday, April 25, 2017 9:49 AM
To: Torren Valdez
Subject: ASLD (Landowner) Approval for NOI's - Lease #11-26500

FYI

From: Robert Harding
Sent: Wednesday, March 15, 2017 2:31 PM
To: samurillo@azwater.gov
Cc: Fred Breedlove <FBreedlove@azland.gov>; Joe Dixon <jdixon@azland.gov>; Heide Kocsis <HKocsis@azland.gov>
Subject: ASLD (Landowner) Approval for NOI's - Lease #11-26500

Stella,

As you are aware, Florence Copper is in the presence of registering a number of existing wells on State Trust Lease #11-26500 which were originally installed using single registration numbers to permit multiple monitor well installations. A number of these wells will then be permanently abandoned in accordance with Arizona Department of Water Resources (ADWR) requirements. The lessee, Florence Copper, has discussed the specifics of this registration/abandonment process with the Arizona State Land Department (ASLD), and the Department has no objection to the proposed activities.

Please accept this email as documentation of Landowner's approval for the Notice of Intent (NOI) application filings for well registration and abandonment, currently being submitted to ADWR by Florence Copper on ASLD Lease #11-26500, Section 28, T4S, R9E.

Thank you.
Best regards,

Bob Harding
Hydrologist
Water Rights Section
Arizona State land Department
602.542.2672
rharding@azland.gov

Arizona State Land Department

Torren Valdez

From: Ian Ream <IanReam@florencecopper.com>
Sent: Friday, January 13, 2017 9:06 AM
To: Torren Valdez
Subject: Re: Map of monitor well locations

Hi Torren,

The pumps will be QED micro purge. They typically do a liter or two a minute. Very low flow. Looking for discreet interval samples. The flow rate is based on drawdown. The goal is not to draw down the well much more than a half a foot or 1 foot.

Thanks,

Ian Ream
Senior Hydrogeologist
Florence Copper

On Jan 13, 2017, at 8:56 AM, Torren Valdez <tvaldez@azwater.gov> wrote:

> Ian,
>
> Would you happen to know the pump capacity (gpm) for the low-flow pumps that will be installed on those monitoring wells?
>
> Thank you,
>
> Torren Valdez
> Water Planning & Permitting Division
> Arizona Department of Water Resources
> 602.771.8614
>
> <image002.jpg>
>
> ---
>
> **From:** Ian Ream [mailto:IanReam@florencecopper.com]
> **Sent:** Thursday, January 12, 2017 11:13 AM
> **To:** Torren Valdez <tvaldez@azwater.gov>
> **Subject:** Map of monitor well locations
>
> Hi Torren,
>
> Here is a map with the well locations.
>
> Please don't hesitate to contact me if you need anything else or have any questions.
>
> Cheers,
>
> Ian

Ian Ream Senior Hydrogeologist

<image003.jpg>

Florence Copper Inc.
1575 W. Hunt Highway Florence AZ USA 85132
C 520-840-9604 T 520-374-3984 F 520-374-3999
E ianream@florencecopper.com Web florencecopper.com

"Notice Regarding Transmission

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NOTICE

A.R.S. § 41-1030(B), (D), (E) and (F) provide as follows:

B. An agency shall not base a licensing decision in whole or in part on a licensing requirement or condition that is not specifically authorized by statute, rule or state tribal gaming compact. A general grant of authority in statute does not constitute a basis for imposing a licensing requirement or condition unless a rule is made pursuant to that general grant of authority that specifically authorizes the requirement or condition.

D. This section may be enforced in a private civil action and relief may be awarded against the state. The court may award reasonable attorney fees, damages and all fees associated with the license application to a party that prevails in an action against the state for a violation of this section.

E. A state employee may not intentionally or knowingly violate this section. A violation of this section is cause for disciplinary action or dismissal pursuant to the agency's adopted personnel policy.

F. This section does not abrogate the immunity provided by section 12-820.01 or 12-820.02.

ARIZONA DEPARTMENTof WATER RESOURCES
1110 W. Washington St. Suite 310
Engineering and Permits Division
Phoenix, AZ 85007
602-771-8500

NOTICE TO WELL DRILLERS

This is a reminder that a valid drill card be present for the drilling of each and every well constructed on a site.* The problem seems to occur during the construction of a well when an unexpected problem occurs. Either the hole collapses, the hole is dry, a drill bit is lost and can't be recovered, or any number of other situations where the driller feels that he needs to move over and start another well. If you encounter this type of scenario, please be aware drillers do not have the authority to start another well without first obtaining drilling authority for the new well. Please note the following statutes and regulations pertaining to well drilling and construction:

ARIZONA REVISED STATUTE (A.R.S.)

A.R.S. § 45-592.A.

A person may construct, replace or deepen a well in this state only pursuant to this article and section 45-834.01. The drilling of a well may not begin until all requirements of this article and section 45-834.01, as applicable, are met.

***

A.R.S. § 594.A.

The director shall adopt rules establishing construction standards for new wells and replacement wells, the deepening and abandonment of existing wells and the capping of open wells.

***

A.R.S. § 600.A

A well driller shall maintain a complete and accurate log of each well drilled.

ARIZONA ADMINISTRATIVE CODE (A.A.C.)

A.A.C. R12-15-803.A.

A person shall not drill or abandon a well, or cause a well to be drilled or abandoned, in a manner which is not in compliance with A.R.S. Title 45, Chapter 2, Article 10, and the rules adopted thereunder.

***

A.A.C. R12-15-810.A.

A well drilling contractor or single well licensee may commence drilling a well only if the well drilling contractor or licensee has possession of a drilling card at the well site issued by the Director in the name of the well drilling contractor or licensee, authorizing the drilling of the specific well in the specific location.

***

A.A.C. R12-15-816.F.

In the course of drilling a new well, the well may be abandoned without first filing a notice of intent to abandon and without an abandonment card.

*** THIS REQUIREMENT DOES NOT PERTAIN TO THE DRILLING OF MINERAL EXPLORATION, GEOTECHNICAL OR HEAT PUMP BOREHOLES**

Transaction Receipt - Success

Arizona Water Resources
Arizona Water Resources
MID:347501639533
1700 W Washington St
Phoenix , AZ 85012
602-771-8454

04/19/2017 11:49AM
Remittance ID
Arizona041917144729704Chr
Transaction ID:
183294013

KELSEY SHERRARD
500 Main Street
WOODLAND, California 95695
United States
Visa - 3420
Approval Code: 050257

Sale
Amount: $1,650.00

---

multiple
N/A
Cash receipts
0
dgchristiana@azwater.gov

Cardmember acknowledges receipt of goods and/or services in the amount of the total shown hereon and agrees to perform the obligations set forth by the cardmember's agreement with the issuer.

Signature _____

click here to continue.

Printed: 4/19/2017 12:26:46 PM

Arizona Department of Water Resources

1110 West Washington Street, Suite 310
Phoenix AZ 85007

Customer:
KELSEY SHERRARD
NATIONAL EWP
500 MAIN STREET
WOODLAND, CA 95695

Receipt #: 17-50968
Office: MAIN OFFICE
Receipt Date: 04/19/2017
Sale Type: Mail
Cashier: WRDGC

Item No.	Function Code	AOBJ	Description	Ref ID	Qty	Unit Price	Ext Price
8505	122221	4439-6F	MONITOR, PIEZOMETER, AIR SPARGING, SOIL VAPOR EXTR	multiple wells	11	150.00	1,650.00
						RECEIPT TOTAL:	**1,650.00**

Payment type: CREDIT CARD
Amount Paid: $1,650.00
Payment Received Date: 04/19/2017

Authorization 183294013

Notes:

No refund without valid receipt

APPENDIX B

Lithologic Log

HALEY ALDRICH

LITHOLOGIC LOG

O-04

Project	Production Test Facility, Florence, Arizona	File No. 129687
Client	Florence Copper, Inc.	Sheet No. 1 of 15
Contractor	Cascade Drilling LLC	Cadastral Location D (4-9) 28 CBD

Drilling Method	Reverse Rotary	Land Surface Elevation	1476.94 feet, amsl	Start	4 January 2018
Borehole Diameter(s)	20/12.25 in.	Datum	State Plane NAD 83	Finish	20 January 2018
Rig Make & Model	Challenger 280	Location	N 745,989 E 847,624	H&A Rep.	S. Kaney

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	COMMENTS
0	1475			**(0-50 feet)UBFU**	**Well Registry ID:** 55-2527233 **Surface Completion:** Locking Well Vault & Concrete Pad **Well casing stickup:** 2.36 feet als *COLOR IDENTIFICATION MADE WITH WET SAMPLES USING MUNSELL CHART*
5	1470				
10	1465				
15	1460				
20	1455				
25	1450				
30	1445				
35	1440				
40	1435				**Surface Casing:** 14-inch mild steel; 0 - 40 feet **Well Casing:** Nominal 5-inch diameter Fiberglass Reinforced; -2.36 - 501 feet
45	1430				
50	1425	SW	50	**WELL GRADED SAND (50-60 feet)** Primarily fine to coarse sand with ~5% fines and trace gravel up to 4mm. Sand is subrounded to angular. Fines are nonplastic, no toughness, low dry strength, (7.5YR 5/4), and no reaction to HCL. **UBFU**	
55	1420				
60	1415	SM-SC	60	**SILTY SAND with GRAVEL (60-75 feet)** Primarily fine to medium sand with ~15% fines and ~5% gravel up to 6mm. Sand is subrounded to angular and gravel is subangular to subrounded. Fines have low plasticity, low toughness, medium dry strength, (7.5YR 5/4), and no reaction to HCL. **UBFU**	**Unit Intervals:** UBFU: 0 - 280 feet MGFU: 280 - 302 feet LBFU: 302 - 390 feet Oxide Bedrock: 390 - 1224 feet
65	1410				
70	1405				
75					

NOTE: Lithologic descrptions, group symbols, and grain-size determinations based on the USCS visual-manual method (Haley & Aldrich OP2001A - Field Practice for Soil Identification and Description).

O-04

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	
75	1400				
80	1395	CL	80	**SANDY CLAY with GRAVEL (80-90 feet)** Primarily fines with ~10% sands and ~25% gravel up to 4mm. Sand and gravel is subrounded to angular. Fines have medium plasticity, low toughness, high dry strength, (7.5YR 5/4), and strong reaction to HCL. **UBFU**	
85	1390				
90	1385	SW	90	**WELL GRADED SAND (90-100 feet)** Primarily medium to fine sand with ~5% gravel up to 10mm. Sand is subrounded to angular and gravel is subangular to subrounded. Fines are nonplastic, no toughness, no dry strength, (7.5YR 4/6), and no reaction to HCL. **UBFU**	
95	1380				
100	1375	CL	100	**FAT CLAY <B> >** (100-105 feet) **Primarily fines ~15% sands. Sand is subrounded. Fines have medium plasticity, medium toughness, high dry strength, (7.5YR 4/6), and moderate reaction to HCL.** UBFU	**Seal:** Type V neat cement 0 - 473 feet Fine sand/bentonite 473 - 485 feet
105	1370	SW	105	**WELL GRADED SAND (105-115 feet)** Primarily medium to coarse sand with ~5% fines and trace gravel up to 5mm. Sand is subrounded to angular. Fines are nonplastic, no toughness, no dry strength, (7.5YR 5/4), and no reaction to HCL. **UBFU**	
110	1365				
115	1360	CH	115	**CLAY with SILT (115-125 feet)** Primarily fines with ~15% sands. Sand is subrounded to angular. Fines have high plasticity, low toughness, high dry strength, and strong reaction to HCL. **UBFU**	
120	1355				
125	1350	SP-SM	125	**POORLY GRADED SAND with CLAY and SILT (125-135 feet)** Primarily fine to medium sand with ~30% fines and trace gravel up to 3mm. Sand and gravel is subrounded to angular. Fines have low plasticity, low toughness, medium dry strength, (7.5YR 4/6), and strong reaction to HCL. **UBFU**	
130	1345				
135	1340	SP	135	**POORLY GRADED SAND (135-140 feet)** Primarily fine to medium sand with ~5% fines and ~5% gravel up to 4mm. Sand is subrounded to angular and gravel is subrounded. Fines are nonplastic, no toughness, no dry strength, (7.5YR 4/6), and weak reaction to HCL. **UBFU**	
140	1335	SW	140	**WELL GRADED SAND (140-150 feet)** Primarily medium to fine sand with ~5% fines and trace gravel up to 4mm. Sand is subrounded to angular. Fines are nonplastic, no toughness, no dry strength, (7.5YR 4/4), and no reaction to HCL. **UBFU**	
145	1330				
150	1325	CH	150	**CLAY with SILT (155-155 feet)** Primarily fines with ~30% sands and trace gravel. Sand and gravel is subangular to subrounded. Fines have medium plasticity, medium toughness, high dry strength, (7.5YR 5/4), and strong reaction to HCL. **UBFU**	
155	1320	SW	155	**WELL GRADED SAND (155-165 feet)** Primarily fine to medium sand with ~5% fines and ~10% gravel up to 3mm. Sand is subrounded to angular and gravel is subangular to subrounded. Fines are nonplastic, no toughness, no dry strength, (7.5YR 5/4), and weak reaction to HCL. **UBFU**	
160					

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
	1315			
165	1310	SM	165	**SILTY SAND with GRAVEL (165-170 feet)** Primarily fine to medium sand with ~20% fines and ~10% gravel up to 5mm. Sand is subrounded to angular and gravel is subrounded. Fines have low plasticity, no toughness, medium dry strength, (7.5YR 5/4), and strong reaction to HCL. **UBFU**
170	1305	CH	170	**CLAY with SAND and GRAVEL (170-180 feet)** Primarily fines with ~30% sands and ~15% gravel up to 10mm. Sand is subrounded to angular and gravel is subangular to subrounded. Fines have medium plasticity, low toughness, medium dry strength, (7.5YR 5/4), and moderate reaction to HCL. **UBFU**
175	1300			
180	1295	SW	180	**WELL GRADED SAND with SILT and GRAVEL (180-200 feet)** Primarily coarse to fine sand with ~10% fines and ~10% gravel up to 10mm. Sand is subrounded to angular and gravel is subangular to subrounded. Fines have low plasticity, low toughness, no dry strength, (7.5YR 5/4), and weak reaction to HCL. **UBFU**
185	1290			
190	1285			
195	1280			
200	1275	MH	200	**CLAYEY SILT with SAND (200-205 feet)** Primarily fines with ~35% fines. Sand is subangular to subrounded. Fines have medium plasticity, low toughness, medium dry strength, (7.5YR 5/4), and strong reaction to HCL. **UBFU**
205	1270	SM	205	**SILTY SAND with CLAY (205-210 feet)** Primarily fine to medium sand with ~30% fines and trace gravel up to 6mm. Sand is subrounded to subangular and gravel is subrounded. Fines are nonplastic, no toughness, low dry strength, (7.5YR 5/4), and weak reaction to HCL. **UBFU**
210	1265	SW	210	**WELL GRADED SAND (210-225 feet)** Primarily medium to fine sand with ~5% fines and ~5% gravel up to 4mm. Sand is subrounded to angular and gravel is subangular to subrounded. Fines are nonplastic, no toughness, no dry strength, (7.5YR 3/4), and no reaction to HCL. **UBFU**
215	1260			
220	1255			
225	1250	SC	225	**CLAYEY SAND (225-250 feet)** Primarily fine to medium sand with ~45% fines and trace gravel up to 4mm. Sand is subrounded to angular. Fines have medium plasticity, low toughness, no dry strength, (7.5YR 5/4), and weak reaction to HCL. **UBFU**
230	1245			
235	1240			
240	1235			
245	1230			

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	
250	1225	SP	250	**POORLY GRADED SAND (250-280 feet)** Primarily fine to coarse sand with ~5% fines and ~10% gravel up to 21mm. Sand is subrounded to angular and gravel is subangular to subrounded. Fines are nonplastic, no toughness, no dry strength, (7.5YR 3/4), and no reaction to HCL. **UBFU**	
255	1220				
260	1215				
265	1210				
270	1205				
275	1200				**ACD Sensor Depths:** 272, 275 feet
280	1195	CH	280	**FAT CLAY (280-302 feet)** Primarily fines with ~5% sands up to 2mm. Sand is subangular. Fines have high plasticity, high toughness, high dry strength, (7.5YR 5/6), and no reaction to HCL. **MGFU**	
285	1190				
290	1185				
295	1180				
300	1175	SC	302	**CLAYEY SAND (302-310 feet)** Primarily fine to medium sand with ~35% fines up to 4mm. Sand is subrounded to angular. Fines have medium plasticity, medium toughness, high dry strength, (7.5YR 5/4), and no reaction to HCL. **LBFU**	
305	1170				
310	1165	SP	310	**POORLY GRADED SAND with GRAVEL (310-375 feet)** Primarily fine to coarse sand with ~5% fines and ~20% gravel up to 20mm. Sand is subrounded to angular and gravel is subangular to subrounded. Fines are nonplastic, no toughness, no dry strength, (7.5YR 4/4), and no reaction to HCL. **LBFU**	
315	1160				
320	1155				
325	1150				
330	1145				
335					

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	
340	1140				**CS Sensor Depths:** 350, 370, 390, 410 feet
345	1135				
350	1130				
355	1125				
360	1120				
365	1115				
370	1110				
375	1105				
380	1100				
385	1095				
390	1090		390	**QUARTZ MONZONITE (390-405 feet)** Consists of quartz at approximately 35%, potassium feldspars at approximately 35%, plagioclase at approximately 25%, and biotite at approximately 5%. Cu minerals present.	
395	1085				
400	1080				
405	1075		405	**GRANODIORITE (405-480 feet)** Contains mostly plagioclase in a gray aphanitic matrix with biotite crystals composing approximately 10%. Clay present 410-415 feet.	
410	1070				
415	1065				
420	1060				
	1055		422		

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	
425	1050			**GRANODIORITE (405-480 feet)** Continued	
430	1045				
435	1040				
440	1035				
445	1030				
450	1025				
455	1020				
460	1015				
465	1010				
470	1005				
475	1000				
480	995		480	**QUARTZ MONZONITE (480-495 feet)** Consists of quartz at approximately 35%, potassium feldspars at approximately 35%, plagioclase at approximately 25%, and biotite at approximately 5%. Cu minerals present.	**Filter Pack:** 8 - 12 CO Silica Sand; 485 - 1225 feet **Thread Adapter:** Stainless Steel, SCH 80 F480 PVC to API; 498 feet
485	990				
490	985				
495	980		495	**GRANODIORITE (495-755 feet)** Contains mostly plagioclase in a gray aphanitic matrix with biotite crystals composing approximately 10%. Clay present 500-510 feet and 615-625 feet.	**Well Screen:** Nominal 5-inch diameter, SCH 80 PVC Screen (0.020-inch slots); 498 - 1200 feet **ERT Sensor Depths:** 516, 591, 666, 742, 817, 892, 967, 1041, 1117, 1193 feet
500	975				
505	970				

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
510	965		509	**GRANODIORITE (495-755 feet)** Continued
515	960			
520	955			
525	950			
530	945			
535	940			
540	935			
545	930			
550	925			
555	920			
560	915			
565	910			
570	905			
575	900			
580	895			
585	890			
590	885			
595				

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
			596	**GRANODIORITE (495-755 feet)** Continued
600	880			
605	875			
610	870			
615	865			
620	860			
625	855			
630	850			
635	845			
640	840			
645	835			
650	830			
655	825			
660	820			
665	815			
670	810			
675	805			
680	800			
	795		682	

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
685	790			**GRANODIORITE (495-755 feet)** Continued
690	785			
695	780			
700	775			
705	770			
710	765			
715	760			
720	755			
725	750			
730	745			
735	740			
740	735			
745	730			
750	725			
755	720		755	**QUARTZ MONZONITE (755-990 feet)** Consists of quartz at approximately 35%, potassium feldspars at approximately 35%, plagioclase at approximately 25%, and biotite at approximately 5%.
760	715			
765	710			

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
770	705		770	**QUARTZ MONZONITE (755-990 feet)** Continued
775	700			
780	695			
785	690			
790	685			
795	680			
800	675			
805	670			
810	665			
815	660			
820	655			
825	650			
830	645			
835	640			
840	635			
845	630			
850	625			
855			856	

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
860	620			**QUARTZ MONZONITE (755-990 feet)** Continued
865	615			
870	610			
875	605			
880	600			
885	595			
890	590			
895	585			
900	580			
905	575			
910	570			
915	565			
920	560			
925	555			
930	550			
935	545			
940	540			
	535		943	

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
945	530			**QUARTZ MONZONITE (755-990 feet)** Continued
950	525			
955	520			
960	515			
965	510			
970	505			
975	500			
980	495			
985	490			
990	485		990	**GRANODIORITE (990-1005 feet)** Contains mostly plagioclase in a gray aphanitic matrix with biotite crystals composing approximately 10%.
995	480			
1000	475			
1005	470		1005	**QUARTZ MONZONITE (1005-1225 feet)** Consists of quartz at approximately 35%, potassium feldspars at approximately 35%, plagioclase at approximately 25%, and biotite at approximately 5%.
1010	465			
1015	460			
1020	455			
1025	450			

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
1030	445		1030	**QUARTZ MONZONITE (1005-1225 feet)** Continued
1035	440			
1040	435			
1045	430			
1050	425			
1055	420			
1060	415			
1065	410			
1070	405			
1075	400			
1080	395			
1085	390			
1090	385			
1095	380			
1100	375			
1105	370			
1110	365			
1115				

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
	360		1117	**QUARTZ MONZONITE (1005-1225 feet)** Continued
1120	355			
1125	350			
1130	345			
1135	340			
1140	335			
1145	330			
1150	325			
1155	320			
1160	315			
1165	310			
1170	305			
1175	300			
1180	295			
1185	290			
1190	285			
1195	280			
1200	275			

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	
			1204	**QUARTZ MONZONITE (1005-1225 feet)** Continued	
1205	270				
1210	265				
1215	260				
1220	255				
1225			1225		**Total Borehole Depth:** Driller = 1225 feet; Geophysical Logging = 1220 feet

APPENDIX C

Chemical Characteristics of Formation Water

May 23, 2018

Barbara Sylvester
Brown & Caldwell
201 E. Washington Suite 500
Phoenix, AZ 85004

TEL (602) 567-3894
FAX -

Work Order No.: 18D0619
Order Name: Florence Copper

RE: PTF

Dear Barbara Sylvester,

Turner Laboratories, Inc. received 2 sample(s) on 04/25/2018 for the analyses presented in the following report.

All results are intended to be considered in their entirety, and Turner Laboratories, Inc. is not responsible for use of less than the complete report. Results apply only to the samples analyzed. Samples will be disposed of 30 days after issue of our report unless special arrangements are made.

The pages that follow may contain sensitive, privileged or confidential information intended solely for the addressee named above. If you receive this message and are not the agent or employee of the addressee, this communication has been sent in error. Please do not disseminate or copy any of the attached and notify the sender immediately by telephone. Please also return the attached sheet(s) to the sender by mail.

Please call if you have any questions.

Respectfully submitted,

Turner Laboratories, Inc.
ADHS License AZ0066

Kevin Brim
Project Manager

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

Order: Florence Copper

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date/Time
18D0619-01	R-09	Ground Water	04/23/2018 1555
18D0619-02	TB	Ground Water	04/25/2018 0000

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

Case Narrative

The 8015D analysis was performed by TestAmerica Laboratories, Inc. in Phoenix, AZ.

The radiochemistry analysis was performed by Radiation Safety Engineering, Inc. in Chandler, AZ.

D5	Minimum Reporting Limit (MRL) is adjusted due to sample dilution; analyte was non-detect in the sample.
H5	This test is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated LCS/LCSD recovery was acceptable.

All soil, sludge, and solid matrix determinations are reported on a wet weight basis unless otherwise noted.

ND	Not Detected at or above the PQL
PQL	Practical Quantitation Limit
DF	Dilution Factor
PRL	Project Reporting Limit

Turner Laboratories, Inc.

Date: 05/23/2018

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Lab Sample ID: 18D0619-01

Client Sample ID: R-09
Collection Date/Time: 04/23/2018 1555
Matrix: Ground Water
Order Name: Florence Copper

Analyses	Result	PRL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
ICP Dissolved Metals-E 200.7 (4.4)									
Calcium	140		4.0	M3	mg/L	1	04/27/2018 1440	05/04/2018 1150	MH
Iron	ND		0.30		mg/L	1	04/27/2018 1440	05/04/2018 1150	MH
Magnesium	27		3.0		mg/L	1	04/27/2018 1440	05/04/2018 1150	MH
Potassium	6.8		5.0		mg/L	1	04/27/2018 1440	05/04/2018 1150	MH
Sodium	170		5.0	M3	mg/L	1	04/27/2018 1440	05/04/2018 1150	MH
ICP/MS Dissolved Metals-E 200.8 (5.4)									
Aluminum	ND		0.0800	D5	mg/L	2	04/27/2018 1440	05/07/2018 1139	MH
Antimony	ND		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Arsenic	0.0016		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Barium	0.071		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Beryllium	ND		0.00050	D5	mg/L	2	04/27/2018 1440	05/07/2018 1139	MH
Cadmium	ND		0.00025		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Chromium	0.0051		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Cobalt	ND		0.00025		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Copper	0.011		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Lead	ND		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Manganese	0.0020		0.00025		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Nickel	0.0033		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Selenium	ND		0.0025		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Thallium	ND		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Zinc	ND		0.040		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
CVAA Dissolved Mercury-E 245.1									
Mercury	ND		0.0010		mg/L	1	04/26/2018 0955	04/26/2018 1639	MH
pH-E150.1									
pH (pH Units)	7.8			H5	-	1	04/26/2018 1615	04/26/2018 1616	AP
Temperature (°C)	22			H5	-	1	04/26/2018 1615	04/26/2018 1616	AP
ICP/MS Total Metals-E200.8 (5.4)									
Uranium	0.016		0.00050		mg/L	1	04/27/2018 1230	04/30/2018 1348	MH

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Lab Sample ID: 18D0619-01

Client Sample ID: R-09
Collection Date/Time: 04/23/2018 1555
Matrix: Ground Water
Order Name: Florence Copper

Analyses	Result	PRL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Anions by Ion Chromatography-E300.0 (2.1)									
Chloride	310		25		mg/L	25	04/26/2018 1225	04/26/2018 1415	AP
Fluoride	ND		0.50		mg/L	1	04/25/2018 1208	04/25/2018 1544	AP
Nitrogen, Nitrate (As N)	8.8		0.50		mg/L	1	04/25/2018 1208	04/25/2018 1544	AP
Nitrogen, Nitrite (As N)	ND		0.10		mg/L	1	04/25/2018 1208	04/25/2018 1544	AP
Sulfate	190		130		mg/L	25	04/26/2018 1225	04/26/2018 1415	AP
Cyanide-E335.4									
Cyanide	ND		0.10		mg/L	1	04/26/2018 0845	04/30/2018 1545	AP
Alkalinity-SM2320B									
Alkalinity, Bicarbonate (As CaCO3)	150		2.0		mg/L	1	05/03/2018 1030	05/03/2018 1210	EJ
Alkalinity, Carbonate (As CaCO3)	ND		2.0		mg/L	1	05/03/2018 1030	05/03/2018 1210	EJ
Alkalinity, Hydroxide (As CaCO3)	ND		2.0		mg/L	1	05/03/2018 1030	05/03/2018 1210	EJ
Alkalinity, Phenolphthalein (As CaCO3)	ND		2.0		mg/L	1	05/03/2018 1030	05/03/2018 1210	EJ
Alkalinity, Total (As CaCO3)	150		2.0		mg/L	1	05/03/2018 1030	05/03/2018 1210	EJ
Specific Conductance-SM2510 B									
Conductivity	1700		0.20		µmhos/cm	2	05/09/2018 1315	05/09/2018 1330	AP
Total Dissolved Solids (Residue, Filterable)-SM2540 C									
Total Dissolved Solids (Residue, Filterable)	1000		20		mg/L	1	04/26/2018 0826	05/01/2018 1600	EJ
Volatile Organic Compounds by GC/MS-SW8260B									
Benzene	ND		0.50		ug/L	1	05/07/2018 1824	05/07/2018 1943	KP
Carbon disulfide	ND		2.0		ug/L	1	05/07/2018 1824	05/07/2018 1943	KP
Ethylbenzene	ND		0.50		ug/L	1	05/07/2018 1824	05/07/2018 1943	KP
Toluene	ND		0.50		ug/L	1	05/07/2018 1824	05/07/2018 1943	KP
Xylenes, Total	ND		1.5		ug/L	1	05/07/2018 1824	05/07/2018 1943	KP
Surr: 4-Bromofluorobenzene	*95*	*70-130*			*%REC*	*1*	*05/07/2018 1824*	*05/07/2018 1943*	*KP*
Surr: Dibromofluoromethane	*101*	*70-130*			*%REC*	*1*	*05/07/2018 1824*	*05/07/2018 1943*	*KP*
Surr: Toluene-d8	*77*	*70-130*			*%REC*	*1*	*05/07/2018 1824*	*05/07/2018 1943*	*KP*

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Lab Sample ID: 18D0619-02

Client Sample ID: TB
Collection Date/Time: 04/25/2018 0000
Matrix: Ground Water
Order Name: Florence Copper

Analyses	Result	PRL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Volatile Organic Compounds by GC/MS-SW8260B									
Benzene	ND		0.50		ug/L	1	05/07/2018 1824	05/07/2018 2344	KP
Carbon disulfide	ND		2.0		ug/L	1	05/07/2018 1824	05/07/2018 2344	KP
Ethylbenzene	ND		0.50		ug/L	1	05/07/2018 1824	05/07/2018 2344	KP
Toluene	ND		0.50		ug/L	1	05/07/2018 1824	05/07/2018 2344	KP
Xylenes, Total	ND		1.5		ug/L	1	05/07/2018 1824	05/07/2018 2344	KP
Surr: 4-Bromofluorobenzene	*101*	*70-130*			*%REC*	*1*	*05/07/2018 1824*	*05/07/2018 2344*	*KP*
Surr: Dibromofluoromethane	*110*	*70-130*			*%REC*	*1*	*05/07/2018 1824*	*05/07/2018 2344*	*KP*
Surr: Toluene-d8	*103*	*70-130*			*%REC*	*1*	*05/07/2018 1824*	*05/07/2018 2344*	*KP*

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1804269 - E 245.1										
Blank (1804269-BLK1)				Prepared & Analyzed: 04/26/2018						
Mercury	ND	0.0010	mg/L							
LCS (1804269-BS1)				Prepared & Analyzed: 04/26/2018						
Mercury	0.0049	0.0010	mg/L	0.005000		98	85-115			
LCS Dup (1804269-BSD1)				Prepared & Analyzed: 04/26/2018						
Mercury	0.0048	0.0010	mg/L	0.005000		95	85-115	2	20	
Matrix Spike (1804269-MS1)		**Source: 18D0394-01**		Prepared & Analyzed: 04/26/2018						
Mercury	0.0050	0.0010	mg/L	0.005000	0.00020	97	85-115			
Matrix Spike Dup (1804269-MSD1)		**Source: 18D0394-01**		Prepared & Analyzed: 04/26/2018						
Mercury	0.0050	0.0010	mg/L	0.005000	0.00020	96	85-115	1	20	
Batch 1804292 - E200.8 (5.4)										
Blank (1804292-BLK1)				Prepared & Analyzed: 04/30/2018						
Uranium	ND	0.00050	mg/L							
LCS (1804292-BS1)				Prepared & Analyzed: 04/30/2018						
Uranium	0.046	0.00050	mg/L	0.05000		92	85-115			
LCS Dup (1804292-BSD1)				Prepared & Analyzed: 04/30/2018						
Uranium	0.046	0.00050	mg/L	0.05000		92	85-115	0.2	20	
Matrix Spike (1804292-MS1)		**Source: 18D0614-01**		Prepared & Analyzed: 04/30/2018						
Uranium	0.051	0.00050	mg/L	0.05000	0.0015	99	70-130			
Batch 1805051 - E 200.7 (4.4)										
Blank (1805051-BLK1)				Prepared & Analyzed: 05/04/2018						
Calcium	ND	4.0	mg/L							
Iron	ND	0.30	mg/L							
Magnesium	ND	3.0	mg/L							
Potassium	ND	5.0	mg/L							
Sodium	ND	5.0	mg/L							
LCS (1805051-BS1)				Prepared & Analyzed: 05/04/2018						
Calcium	11	4.0	mg/L	10.00		109	85-115			
Iron	1.0	0.30	mg/L	1.000		104	85-115			
Magnesium	10	3.0	mg/L	10.00		105	85-115			
Potassium	10	5.0	mg/L	10.00		105	85-115			
Sodium	10	5.0	mg/L	10.00		105	85-115			
LCS Dup (1805051-BSD1)				Prepared & Analyzed: 05/04/2018						
Calcium	11	4.0	mg/L	10.00		110	85-115	1	20	
Iron	1.0	0.30	mg/L	1.000		105	85-115	0.5	20	
Magnesium	10	3.0	mg/L	10.00		105	85-115	0.06	20	
Potassium	10	5.0	mg/L	10.00		105	85-115	0.05	20	
Sodium	11	5.0	mg/L	10.00		109	85-115	4	20	

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1805051 - E 200.7 (4.4)										
Matrix Spike (1805051-MS1)	**Source: 18D0619-01**			Prepared & Analyzed: 05/04/2018						
Calcium	150	4.0	mg/L	10.00	140	59	70-130			M3
Iron	1.1	0.30	mg/L	1.000	0.028	105	70-130			
Magnesium	38	3.0	mg/L	10.00	27	108	70-130			
Potassium	17	5.0	mg/L	10.00	6.8	105	70-130			
Sodium	170	5.0	mg/L	10.00	170	30	70-130			M3
Matrix Spike (1805051-MS2)	**Source: 18E0021-01**			Prepared & Analyzed: 05/04/2018						
Calcium	64	4.0	mg/L	10.00	54	103	70-130			
Iron	1.0	0.30	mg/L	1.000	0.0060	101	70-130			
Magnesium	21	3.0	mg/L	10.00	11	99	70-130			
Potassium	15	5.0	mg/L	10.00	4.7	104	70-130			
Sodium	99	5.0	mg/L	10.00	90	87	70-130			
Batch 1805069 - E 200.8 (5.4)										
Blank (1805069-BLK1)				Prepared & Analyzed: 05/07/2018						
Aluminum	ND	0.0400	mg/L							
Antimony	ND	0.00050	mg/L							
Arsenic	ND	0.00050	mg/L							
Barium	ND	0.00050	mg/L							
Beryllium	ND	0.00025	mg/L							
Cadmium	ND	0.00025	mg/L							
Chromium	ND	0.00050	mg/L							
Cobalt	ND	0.00025	mg/L							
Copper	ND	0.00050	mg/L							
Lead	ND	0.00050	mg/L							
Manganese	ND	0.00025	mg/L							
Nickel	ND	0.00050	mg/L							
Selenium	ND	0.0025	mg/L							
Thallium	ND	0.00050	mg/L							
Zinc	ND	0.040	mg/L							
LCS (1805069-BS1)				Prepared & Analyzed: 05/07/2018						
Aluminum	0.104	0.0400	mg/L	0.1000		104	85-115			
Antimony	0.048	0.00050	mg/L	0.05000		96	85-115			
Arsenic	0.050	0.00050	mg/L	0.05000		100	85-115			
Barium	0.050	0.00050	mg/L	0.05000		100	85-115			
Beryllium	0.049	0.00025	mg/L	0.05000		97	85-115			
Cadmium	0.050	0.00025	mg/L	0.05000		100	85-115			
Chromium	0.051	0.00050	mg/L	0.05000		102	85-115			
Cobalt	0.051	0.00025	mg/L	0.05000		101	85-115			
Copper	0.051	0.00050	mg/L	0.05000		103	85-115			
Lead	0.049	0.00050	mg/L	0.05000		98	85-115			
Manganese	0.050	0.00025	mg/L	0.05000		101	85-115			
Nickel	0.051	0.00050	mg/L	0.05000		102	85-115			
Selenium	0.051	0.0025	mg/L	0.05000		103	85-115			
Thallium	0.050	0.00050	mg/L	0.05000		101	85-115			
Zinc	0.10	0.040	mg/L	0.1000		101	85-115			

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1805069 - E 200.8 (5.4)										
LCS Dup (1805069-BSD1)				Prepared & Analyzed: 05/07/2018						
Aluminum	0.115	0.0400	mg/L	0.1000		115	85-115	10	20	
Antimony	0.048	0.00050	mg/L	0.05000		96	85-115	0.7	20	
Arsenic	0.050	0.00050	mg/L	0.05000		101	85-115	0.8	20	
Barium	0.051	0.00050	mg/L	0.05000		102	85-115	1	20	
Beryllium	0.049	0.00025	mg/L	0.05000		97	85-115	0.2	20	
Cadmium	0.050	0.00025	mg/L	0.05000		100	85-115	0.2	20	
Chromium	0.051	0.00050	mg/L	0.05000		102	85-115	0.4	20	
Cobalt	0.050	0.00025	mg/L	0.05000		101	85-115	0.5	20	
Copper	0.052	0.00050	mg/L	0.05000		105	85-115	2	20	
Lead	0.049	0.00050	mg/L	0.05000		98	85-115	0.1	20	
Manganese	0.050	0.00025	mg/L	0.05000		101	85-115	0.09	20	
Nickel	0.051	0.00050	mg/L	0.05000		103	85-115	0.8	20	
Selenium	0.052	0.0025	mg/L	0.05000		104	85-115	2	20	
Thallium	0.050	0.00050	mg/L	0.05000		101	85-115	0.06	20	
Zinc	0.10	0.040	mg/L	0.1000		104	85-115	3	20	
Matrix Spike (1805069-MS1)		**Source: 18D0693-01**		Prepared & Analyzed: 05/07/2018						
Aluminum	0.239	0.0400	mg/L	0.1000	0.166	74	70-130			
Antimony	0.045	0.00050	mg/L	0.05000	0.00024	90	70-130			
Arsenic	0.056	0.00050	mg/L	0.05000	0.0035	104	70-130			
Barium	0.16	0.00050	mg/L	0.05000	0.12	94	70-130			
Beryllium	0.045	0.00025	mg/L	0.05000	0.000029	90	70-130			
Cadmium	0.047	0.00025	mg/L	0.05000	ND	94	70-130			
Chromium	0.049	0.00050	mg/L	0.05000	0.00052	98	70-130			
Cobalt	0.048	0.00025	mg/L	0.05000	0.00097	95	70-130			
Copper	0.051	0.00050	mg/L	0.05000	0.0020	98	70-130			
Lead	0.047	0.00050	mg/L	0.05000	0.00016	94	70-130			
Manganese	0.054	0.00025	mg/L	0.05000	0.0075	94	70-130			
Nickel	0.049	0.00050	mg/L	0.05000	0.0018	94	70-130			
Selenium	0.057	0.0025	mg/L	0.05000	ND	114	70-130			
Thallium	0.048	0.00050	mg/L	0.05000	0.000038	96	70-130			
Zinc	0.11	0.040	mg/L	0.1000	ND	109	70-130			

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1804261 - SM2540 C										
Duplicate (1804261-DUP1)		**Source: 18D0606-01**		Prepared: 04/26/2018 Analyzed: 04/27/2018						
Total Dissolved Solids (Residue, Filterable)	630	20	mg/L		630			0.3	5	
Duplicate (1804261-DUP2)		**Source: 18D0606-02**		Prepared: 04/26/2018 Analyzed: 04/27/2018						
Total Dissolved Solids (Residue, Filterable)	610	20	mg/L		620			0.8	5	
Batch 1804268 - E335.4										
Blank (1804268-BLK1)				Prepared: 04/26/2018 Analyzed: 04/30/2018						
Cyanide	ND	0.10	mg/L							
LCS (1804268-BS1)				Prepared: 04/26/2018 Analyzed: 04/30/2018						
Cyanide	2.0	0.10	mg/L	2.000		101	90-110			
LCS Dup (1804268-BSD1)				Prepared: 04/26/2018 Analyzed: 04/30/2018						
Cyanide	2.0	0.10	mg/L	2.000		101	90-110	0.1	20	
Matrix Spike (1804268-MS1)		**Source: 18D0602-03**		Prepared: 04/26/2018 Analyzed: 04/30/2018						
Cyanide	2.1	0.10	mg/L	2.000	ND	103	90-110			
Matrix Spike Dup (1804268-MSD1)		**Source: 18D0602-03**		Prepared: 04/26/2018 Analyzed: 04/30/2018						
Cyanide	2.0	0.10	mg/L	2.000	ND	98	90-110	5	20	
Batch 1804272 - E150.1										
Duplicate (1804272-DUP1)		**Source: 18D0662-02**		Prepared & Analyzed: 04/26/2018						
pH (pH Units)	7.8		-		7.8			0.1	200	H5
Temperature (°C)	21		-		21			2	200	H5
Batch 1805027 - SM2320B										
LCS (1805027-BS1)				Prepared & Analyzed: 05/03/2018						
Alkalinity, Total (As CaCO3)	240	2.0	mg/L	250.0		96	90-110			
LCS Dup (1805027-BSD1)				Prepared & Analyzed: 05/03/2018						
Alkalinity, Total (As CaCO3)	240	2.0	mg/L	250.0		96	90-110	0	10	
Matrix Spike (1805027-MS1)		**Source: 18D0606-02**		Prepared & Analyzed: 05/03/2018						
Alkalinity, Total (As CaCO3)	370	2.0	mg/L	250.0	130	96	85-115			
Matrix Spike Dup (1805027-MSD1)		**Source: 18D0606-02**		Prepared & Analyzed: 05/03/2018						
Alkalinity, Total (As CaCO3)	370	2.0	mg/L	250.0	130	95	85-115	0.5	10	
Batch 1805103 - SM2510 B										
LCS (1805103-BS1)				Prepared & Analyzed: 05/09/2018						
Conductivity	140	0.10	µmhos/cm	141.2		101	0-200			
LCS Dup (1805103-BSD1)				Prepared & Analyzed: 05/09/2018						
Conductivity	140	0.10	µmhos/cm	141.2		101	0-200	0.7	200	
Duplicate (1805103-DUP1)		**Source: 18E0192-01**		Prepared & Analyzed: 05/09/2018						
Conductivity	4.0	0.10	µmhos/cm		4.0			0	10	

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1805074 - SW8260B										
Blank (1805074-BLK1)				Prepared & Analyzed: 05/07/2018						
Benzene	ND	0.50	ug/L							
Carbon disulfide	ND	2.0	ug/L							
Ethylbenzene	ND	0.50	ug/L							
Toluene	ND	0.50	ug/L							
Xylenes, Total	ND	1.5	ug/L							
Surrogate: 4-Bromofluorobenzene	*25.0*		*ug/L*	*25.00*		*100*	*70-130*			
Surrogate: Dibromofluoromethane	*26.9*		*ug/L*	*25.00*		*107*	*70-130*			
Surrogate: Toluene-d8	*25.1*		*ug/L*	*25.00*		*100*	*70-130*			
LCS (1805074-BS1)				Prepared & Analyzed: 05/07/2018						
1,1-Dichloroethene	29		ug/L	25.00		114	70-130			
Benzene	27		ug/L	25.00		109	70-130			
Chlorobenzene	29		ug/L	25.00		115	70-130			
Toluene	25		ug/L	25.00		101	70-130			
Trichloroethene	26		ug/L	25.00		103	70-130			
Surrogate: 4-Bromofluorobenzene	*24.6*		*ug/L*	*25.00*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*25.6*		*ug/L*	*25.00*		*102*	*70-130*			
Surrogate: Toluene-d8	*24.8*		*ug/L*	*25.00*		*99*	*70-130*			
LCS Dup (1805074-BSD1)				Prepared & Analyzed: 05/07/2018						
1,1-Dichloroethene	27		ug/L	25.00		110	70-130	4	30	
Benzene	26		ug/L	25.00		104	70-130	5	30	
Chlorobenzene	26		ug/L	25.00		105	70-130	9	30	
Toluene	24		ug/L	25.00		96	70-130	5	30	
Trichloroethene	25		ug/L	25.00		98	70-130	4	30	
Surrogate: 4-Bromofluorobenzene	*24.4*		*ug/L*	*25.00*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*26.1*		*ug/L*	*25.00*		*104*	*70-130*			
Surrogate: Toluene-d8	*25.1*		*ug/L*	*25.00*		*100*	*70-130*			
Matrix Spike (1805074-MS1)	**Source: 18D0582-02**			Prepared & Analyzed: 05/07/2018						
1,1-Dichloroethene	27		ug/L	25.00	0.070	109	70-130			
Benzene	26		ug/L	25.00	0.020	104	70-130			
Chlorobenzene	26		ug/L	25.00	0.0	105	70-130			
Toluene	27		ug/L	25.00	3.5	95	70-130			
Trichloroethene	24		ug/L	25.00	0.040	97	70-130			
Surrogate: 4-Bromofluorobenzene	*24.4*		*ug/L*	*25.00*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*26.4*		*ug/L*	*25.00*		*106*	*70-130*			
Surrogate: Toluene-d8	*24.9*		*ug/L*	*25.00*		*100*	*70-130*			
Matrix Spike Dup (1805074-MSD1)	**Source: 18D0582-02**			Prepared & Analyzed: 05/07/2018						
1,1-Dichloroethene	27		ug/L	25.00	0.070	108	70-130	0.8	30	
Benzene	25		ug/L	25.00	0.020	101	70-130	2	30	
Chlorobenzene	26		ug/L	25.00	0.0	105	70-130	0.3	30	
Toluene	27		ug/L	25.00	3.5	95	70-130	0.1	30	
Trichloroethene	24		ug/L	25.00	0.040	95	70-130	2	30	
Surrogate: 4-Bromofluorobenzene	*24.7*		*ug/L*	*25.00*		*99*	*70-130*			
Surrogate: Dibromofluoromethane	*26.4*		*ug/L*	*25.00*		*106*	*70-130*			
Surrogate: Toluene-d8	*25.3*		*ug/L*	*25.00*		*101*	*70-130*			

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1804245 - E300.0 (2.1)										
Blank (1804245-BLK1)				Prepared & Analyzed: 04/25/2018						
Chloride	ND	1.0	mg/L							
Fluoride	ND	0.50	mg/L							
Nitrogen, Nitrate (As N)	ND	0.50	mg/L							
Nitrogen, Nitrite (As N)	ND	0.10	mg/L							
Sulfate	ND	5.0	mg/L							
LCS (1804245-BS1)				Prepared & Analyzed: 04/25/2018						
Chloride	12	1.0	mg/L	12.50		92	90-110			
Fluoride	2.0	0.50	mg/L	2.000		101	90-110			
Nitrogen, Nitrate (As N)	4.7	0.50	mg/L	5.000		95	90-110			
Nitrogen, Nitrite (As N)	2.3	0.10	mg/L	2.500		92	90-110			
Sulfate	12	5.0	mg/L	12.50		96	90-110			
LCS Dup (1804245-BSD1)				Prepared & Analyzed: 04/25/2018						
Chloride	12	1.0	mg/L	12.50		94	90-110	2	10	
Fluoride	2.0	0.50	mg/L	2.000		101	90-110	0.4	10	
Nitrogen, Nitrate (As N)	4.9	0.50	mg/L	5.000		98	90-110	3	10	
Nitrogen, Nitrite (As N)	2.4	0.10	mg/L	2.500		95	90-110	3	10	
Sulfate	12	5.0	mg/L	12.50		98	90-110	3	10	
Matrix Spike (1804245-MS1)		**Source: 18D0613-08**		Prepared & Analyzed: 04/25/2018						
Fluoride	3.7	0.50	mg/L	2.000	1.7	100	80-120			
Nitrogen, Nitrate (As N)	4.7	0.50	mg/L	5.000	0.22	89	80-120			
Matrix Spike (1804245-MS2)		**Source: 18D0625-01**		Prepared & Analyzed: 04/26/2018						
Nitrogen, Nitrate (As N)	5.0	0.50	mg/L	5.000	0.46	92	80-120			
Nitrogen, Nitrite (As N)	2.2	0.10	mg/L	2.500	ND	88	80-120			
Matrix Spike (1804245-MS3)		**Source: 18D0614-01RE1**		Prepared & Analyzed: 04/26/2018						
Chloride	17		mg/L	12.50	6.4	88	80-120			
Sulfate	28		mg/L	12.50	18	85	80-120			
Matrix Spike Dup (1804245-MSD1)		**Source: 18D0613-08**		Prepared & Analyzed: 04/25/2018						
Fluoride	3.7	0.50	mg/L	2.000	1.7	100	80-120	0.4	10	
Nitrogen, Nitrate (As N)	4.7	0.50	mg/L	5.000	0.22	90	80-120	0.6	10	
Matrix Spike Dup (1804245-MSD2)		**Source: 18D0625-01**		Prepared & Analyzed: 04/26/2018						
Nitrogen, Nitrate (As N)	5.1	0.50	mg/L	5.000	0.46	92	80-120	0.2	10	
Nitrogen, Nitrite (As N)	2.2	0.10	mg/L	2.500	ND	88	80-120	0.4	10	
Matrix Spike Dup (1804245-MSD3)		**Source: 18D0614-01RE1**		Prepared & Analyzed: 04/26/2018						
Chloride	18		mg/L	12.50	6.4	89	80-120	0.6	10	
Sulfate	29		mg/L	12.50	18	86	80-120	0.6	10	

TURNER LABORATORIES INC.
2445 N. Coyote Drive, Suite 104
Tucson, Arizona 85745
(520) 882-5880
Fax: (520) 882-9788
www.turnerlabs.com

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

TURNER WORK ORDER # 18D0619 DATE 4/23/18 PAGE 1 OF 1

PROJECT NAME: Florence Copper #

CONTACT NAME: Barb Sylvester

COMPANY NAME: Brown and Caldwell

ADDRESS: 2 N Central Ave, Suite 1600

CITY: Phoenix STATE: AZ ZIP CODE: 85004

PHONE: 602-567-3894 FAX

SAMPLER'S SIGNATURE: [signature]

CIRCLE ANALYSIS REQUESTED AND/OR CHECK THE APPROPRIATE BOX

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX*	NUMBER OF CONTAINERS	Diss Metals - list (Field Filtered)	Total Uranium (not Filtered)	Inorganics - list	Cyanide (free)	Organics - list	G.Alpha, (RadSafety sub)	Uranium activity if G. Alpha >12	Ra226, 228, Ra-Tot (RadsSafety)	TPH-D (TestAmerica Sub)
R-09	4-23-18	1555		GW	10	X	X	X	X	X	X	X	X	X
8260 TB	4-23-18	1600		GW	1					X				
				GW										
				GW										
				GW										
				GW										
				GW										
				GW										
				GW										
				GW										
				GW										

1. RELINQUISHED BY:
Signature: [signature]
Printed Name
Firm
Date/Time: 4-23-18 1630

2. RECEIVED BY:
Signature: UPS
Printed Name
Firm
Date/Time

3. RELINQUISHED BY:
Signature: UPS
Printed Name
Firm
Date/Time

4. RECEIVED BY:
Signature: [signature]
Printed Name: Joseph Catalano
Firm: TURNER LABORATORIES INC.
Date/Time: 4/23/18 1006

TURNAROUND REQUIREMENTS:
X Standard (approx10 days)*
___ Next day ___ 2 Day ___ 5 Day*
___ Email Preliminary Results To:
* Working Days

*LEGEND
DW = DRINKING WATER
GW = GROUNDWATER
SD = SOLID
SG = SLUDGE
SL = SOIL
ST = STORMWATER
WW = WASTEWATER

REPORT REQUIREMENTS:
X I. Routine Report
___ II. Report (includes DUP,MS,MSD, as required, may be charged as samples)
___ III. Date Validation Report (Includes All Raw Data)
Add 10% to invoice

INVOICE INFORMATION:
Account X Y ___ N
P.O. #
Bill to: Florence Copper

SAMPLE RECEIPT:
Total Containers
Temperature 2.2
☑ Wet Ice ☐ Blue Ice

SPECIAL INSTRUCTIONS/COMMENTS:

Compliance Analysis: ☐ Yes ☐ No
ADEQ Forms: ☐ Yes ☐ No
Mail ADEQ Forms: ☐ Yes ☐ No

Custody Seals ☐
Container Intact ☒
COC/Labels Agree ☒

Preservation Confirmation ☒
Appropriate Head Space ☒
Received Within Hold Time ☒

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Phoenix
4625 East Cotton Ctr Blvd
Suite 189
Phoenix, AZ 85040
Tel: (602)437-3340

TestAmerica Job ID: 550-101943-1
Client Project/Site: 18D0619

For:
Turner Laboratories, Inc.
2445 North Coyote Drive
Suite 104
Tucson, Arizona 85745

Attn: Kevin Brim

Authorized for release by:
5/16/2018 12:23:25 PM

Ken Baker, Project Manager II
(602)659-7624
ken.baker@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
Q9	Insufficient sample received to meet method QC requirements.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Job ID: 550-101943-1

Laboratory: TestAmerica Phoenix

Narrative

Job Narrative
550-101943-1

Comments
No additional comments.

Receipt
The sample was received on 4/27/2018 10:50 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.8º C.

GC Semi VOA
Method(s) 8015D: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD) associated with preparation batch 550-145985 and analytical batch 550-146884. Affected samples have been added a Q9 qualifier. 18D0619-01 (550-101943-1)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Method(s) 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with 3510C.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Sample Summary

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
550-101943-1	18D0619-01	Water	04/23/18 15:55	04/27/18 10:50

Detection Summary

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Client Sample ID: 18D0619-01

Lab Sample ID: 550-101943-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
ORO (C22-C32)	0.21	Q9	0.20		mg/L	1		8015D	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Client Sample ID: 18D0619-01
Date Collected: 04/23/18 15:55
Date Received: 04/27/18 10:50

Lab Sample ID: 550-101943-1
Matrix: Water

Method: 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
ORO (C22-C32)	0.21	Q9	0.20		mg/L		04/30/18 14:16	05/10/18 23:29	1
DRO (C10-C22)	ND	Q9	0.10		mg/L		04/30/18 14:16	05/10/18 23:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*79*		*10 - 150*	*04/30/18 14:16*	*05/10/18 23:29*	*1*

Surrogate Summary

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Method: 8015D - Diesel Range Organics (DRO) (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	OTPH (10-150)							
550-101943-1	18D0619-01	79							
LCS 550-145985/2-A	Lab Control Sample	79							
LCSD 550-145985/3-A	Lab Control Sample Dup	79							
MB 550-145985/1-A	Method Blank	65							

Surrogate Legend

OTPH = o-Terphenyl (Surr)

Method: 8015D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 550-145985/1-A
Matrix: Water
Analysis Batch: 146884

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 145985

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
ORO (C22-C32)	ND		0.20		mg/L		04/30/18 14:15	05/11/18 11:16	1
DRO (C10-C22)	ND		0.10		mg/L		04/30/18 14:15	05/11/18 11:16	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*65*		*10 - 150*	*04/30/18 14:15*	*05/11/18 11:16*	*1*

Lab Sample ID: LCS 550-145985/2-A
Matrix: Water
Analysis Batch: 146884

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 145985

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
ORO (C22-C32)			1.60	1.59		mg/L		99	69 - 107		
DRO (C10-C22)			0.400	0.450		mg/L		113	42 - 133		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*79*		*10 - 150*

Lab Sample ID: LCSD 550-145985/3-A
Matrix: Water
Analysis Batch: 146884

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 145985

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
ORO (C22-C32)			1.60	1.59		mg/L		100	69 - 107	0	20
DRO (C10-C22)			0.400	0.447		mg/L		112	42 - 133	1	22

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*79*		*10 - 150*

QC Association Summary

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

GC Semi VOA

Prep Batch: 145985

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-101943-1	18D0619-01	Total/NA	Water	3510C	
MB 550-145985/1-A	Method Blank	Total/NA	Water	3510C	
LCS 550-145985/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 550-145985/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 146884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-101943-1	18D0619-01	Total/NA	Water	8015D	145985
MB 550-145985/1-A	Method Blank	Total/NA	Water	8015D	145985
LCS 550-145985/2-A	Lab Control Sample	Total/NA	Water	8015D	145985
LCSD 550-145985/3-A	Lab Control Sample Dup	Total/NA	Water	8015D	145985

Lab Chronicle

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Client Sample ID: 18D0619-01
Date Collected: 04/23/18 15:55
Date Received: 04/27/18 10:50

Lab Sample ID: 550-101943-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			145985	04/30/18 14:16	REM	TAL PHX
Total/NA	Analysis	8015D		1	146884	05/10/18 23:29	TC1	TAL PHX

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

Accreditation/Certification Summary

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Laboratory: TestAmerica Phoenix

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arizona	State Program	9	AZ0728	06-09-18

Analysis Method	Prep Method	Matrix	Analyte

Method Summary

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Method	Method Description	Protocol	Laboratory
8015D	Diesel Range Organics (DRO) (GC)	SW846	TAL PHX
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL PHX

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

SUBCONTRACT ORDER

Turner Laboratories, Inc.

101943

18D0619

SENDING LABORATORY:	RECEIVING LABORATORY:
Turner Laboratories, Inc.	TestAmerica Phoenix
2445 N. Coyote Drive, Ste #104	4625 East Cotton Center Boulevard Suite 189
Tucson, AZ 85745	Phoenix, AZ 85540
Phone: 520.882.5880	Phone :(602) 437-3340
Fax: 520.882.9788	Fax:
Project Manager: Kevin Brim	Please CC Kevin Brim Kbrim@turnerlabs.com

Analysis	Expires	Laboratory ID	Comments
-01			
Sample ID: 18D0619-01 Drinking Water	**Sampled:04/23/2018 15:55**		
8015D Sub	04/30/2018 15:55		8015D DRO and ORO Paramaters Only
Containers Supplied:			

8015D Sub
o-Terphenyl
C10-C32 (Total)
C22-C32 (Oil Range Organics)
C10-C22 (Diesel Range Organics)
C6-C10 (Gasoline Range Organics)

550-101943 Chain of Custody

3,8°C UPS GR

TA-PHX

Released By	Date	Received By	Date
	4/24/18		4-27-18 1050
Released By	Date	Received By	Date

Login Sample Receipt Checklist

Client: Turner Laboratories, Inc.

Job Number: 550-101943-1

Login Number: 101943
List Number: 1
Creator: Gravlin, Andrea

List Source: TestAmerica Phoenix

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	False	Check done at department level as required.

Radiation Safety Engineering, Inc.
3245 N. WASHINGTON ST. • CHANDLER, ARIZONA 85225-1121 (480) 897-9459
Website: www.radsafe.com FAX (480) 892-5446

Radiochemical Activity in Water (pCi/L)

Turner Laboratories
2445 N. Coyote Drive, Ste. 104
Tucson, AZ 85745

Sampling Date: April 23, 2018
Sample Received: May 01, 2018
Analysis Completed: May 22, 2018

Sample ID	Gross Alpha Activity Method 600/00-02 (pCi/L)	Uranium Activity Method ASTM D6239 (pCi/L)	Adjusted Gross Alpha (pCi/L)	Radium 226 Activity Method GammaRay HPGE (pCi/L)	Radium 228 Activity Method GammaRay HPGE (pCi/L)	Total Radium (pCi/L)
18D0619-01	17.7 ± 0.9	12.9 ± 1.2	4.8 ± 1.5	3.1 ± 0.3	3.1 ± 0.4	6.2 ± 0.5
Date of Analysis	5/2/2018	5/21/2018	5/21/2018	5/4/2018	5/4/2018	5/4/2018

Robert L. Metzger, Ph.D., C.H.P. 5/22/2018
Laboratory License Number AZ0462 Date

Radiation Safety Engineering, Inc.
3245 N. WASHINGTON ST. • CHANDLER, ARIZONA 85225-1121 (480) 897-9459
Website: www.radsafe.com FAX (480) 892-5446

Isotopic Uranium Analysis

Turner Laboratories
2445 N. Coyote Drive, Ste. 104
Tucson, AZ 85745

Sampling Date: April 23, 2018
Sample Received: May 01, 2018
Uranium Analysis Date: May 21, 2018

Sample No.	^{238}U	^{235}U	^{234}U	Total	
18D0619-01	6.0 ± 0.6	0.280 ± 0.004	6.6 ± 0.6	12.9 ± 1.2	Activity (pCi/L)
	17.9 ± 1.7	0.131 ± 0.002	0.00106 ± 0.00010	18.0 ± 1.7	Content (µg/L)
	Comments:				

Robert L. Metzger, Ph.D., C.H.P. 5/22/2018
Date

Laboratory License Number AZ0462

Arizona Department of Environmental Quality

Drinking Water Radionuclides-Adjusted Gross Alpha, Radium 226 & 228, Uranium Analysis Report

Samples To Be Taken At Entry Point Into Distribution System (EPDS) Only

PWS ID#: AZ04 _____ PWS Name: _____

April 23, 2018 (Sample Date) 15:55 (Sample Time) (24 hour clock) _____ (Owner/Contact Person)

_____ (Owner/Contact Fax Number) _____ (Owner/Contact Phone Number)

Sample Collection Point

☐ EPDS # _____

Compliance Sample Type:

☐ Reduced Monitoring — Date Q1 collected: _____

☐ Quarterly — Date Q2 collected: _____

☐ Composite of four quarterly samples — Date Q3 collected: _____

Date Q4 collected: _____

*****RADIOCHEMICAL ANALYSIS*****

>>>To be filled out by laboratory personnel<<<

*****Combined Uranium must be reported in micrograms per liter*****

Analysis Method	MCL	Reporting Limit	Contaminant Name	Cont. Code	Analyses Run Date	Result		Exceed MCL
	15 pCi/L		Adjusted Gross Alpha	4000	5/21/2018	4.8 ± 1.5		
600/00-02		3 pCi/L	Gross Alpha	4002	5/2/2018	17.7 ± 0.9		
7500 - Rn			Radon	4004				
ASTM D6239	30 µg/L	1 µg/L	Combined Uranium	4006	5/21/2018	18.0 ± 1.7	µg/L	
			Uranium 234	4007	5/21/2018	0.00106 ± 0.00010		
			Uranium 235	4008	5/21/2018	0.131 ± 0.002		
			Uranium 238	4009	5/21/2018	17.9 ± 1.7		
	5 pCi/L	1 pCi/L	Combined Radium (226,228)	4010	5/4/2018	6.2 ± 0.5		X
GammaRay HPGE		1 pCi/L	Radium 226	4020	5/4/2018	3.1 ± 0.3		
GammaRay HPGE		1 pCi/L	Radium 228	4030	5/4/2018	3.1 ± 0.4		

*****LABORATORY INFORMATION*****

>>>To be filled out by laboratory personnel<<<

Specimen Number: RSE60312

Lab ID Number: AZ0462

Lab Name: Radiation Safety Engineering, Inc.

Printed Name and Phone Number of Laboratory Contact: Robert L. Metzger, Ph.D., C.H.P. (480) 897-9459

Comments: 18D0619-01

Authorized Signature: Robt L. Metzger

Date Public Water System Notified: _____

DWAR 6: 11/2007

SUBCONTRACT ORDER

Turner Laboratories, Inc.

18D0619

SENDING LABORATORY:

Turner Laboratories, Inc.
2445 N. Coyote Drive, Ste #104
Tucson, AZ 85745
Phone: 520.882.5880
Fax: 520.882.9788
Project Manager: Kevin Brim

RECEIVING LABORATORY:

Radiation Safety Engineering, Inc.
3245 N. Washington St.
Chandler, AZ 85225-1121
Phone :(480) 897-9459
Fax: (480) 892-5446
Please CC Kevin Brim Kbrim@turnerlabs.com

Analysis	Expires	Laboratory ID	Comments
Sample ID: 18D0619-01 Drinking Water Sampled:04/23/2018 15:55			
Radiochemistry, Gross Alpha	10/20/2018 15:55		Analyze Uranium and Adjusted Alpha if G. Alpha is > 12
Radiochemistry, Radium 226/228	05/23/2018 15:55		
Containers Supplied:			

H 60312

Released By	Date	Received By	Date
[signature]	4/30/18 16:00	UPS	4/30/18 16:00
Released By	Date	Received By	Date

APPENDIX D

Well Completion Documentation

PIPE TALLY

Project Name.: FCT	**Project No.:** 129687-007
Well No.: O-04	**Date:** 1-15-18
Location: Florence	**Pipe Talley for:** C Price +
Total Depth: 1200	**Geologist:** Well Install

Type of Connections: ☐ Welded ☐ T+C ☑ Flush Thread ☐ Other

	Pipe	✓	Length (ft)	Length Σ (ft)	Pipe Type	Dist. from sensor bottom to bottom of pipe (feet)	Sensor Type (ACD, CS, ERT)	Sensor ID	Wire Lead ID	Depth of Sensor (feet bgs)
	1	✓	0.35	0.35	316 S.S. Endcap					
	2	✓	20.03	20.38	0.020 screen	6.24	ERT	10		1193.41
*	3	✓	20.03	40.41						
	4	✓	20.05	60.46						
*	5	✓	20.05	80.51						
	6	✓	20.03	100.54		2.10	ERT	9		1117.39
x	7	✓	20.04	120.58						
	8	✓	20.03	140.61						
*	9	✓	20.04	160.65		18.10	ERT	8		1041.29
*	10	✓	20.05	180.70						
*	11	✓	20.04	200.74						
	12	✓	20.04	220.78						
x	13	✓	20.03	240.81		11.92	ERT	7		967.30
	14	✓	20.05	260.86						
X	15	✓	20.05	280.91						
	16	✓	20.03	300.94						
x	17	✓	20.04	320.98		6.91	ERT	6		892.15
	18	✓	20.04	341.02						
*	19	✓	20.04	361.06						
	20	✓	20.04	381.10						
X	21	✓	20.04	401.14		1.93'	ERT	5		816.97
	22	✓	20.03	421.17						
*	23	✓	20.03	441.20						
	24	✓	20.04	461.24		16.94	ERT	4		741.86
*	25	✓	20.03	481.27						
	26	✓	20.03	501.30						
*	27	✓	20.03	521.33						
	28	✓	20.03	541.36		12.23	ERT	3		666.41
*	29	✓	20.03	561.39						
	30	✓	20.03	581.42						

Notes:
*CENTRALIZERS EVERY 40', STARTING AT TOP OF P 2/4
CABLE TIES TO ATTACH CABLES LEADS EVERY 10'

CASING IS 4 3/4" ID, 5 1/2" OD Sch80 PVC, 0.020 SLOT

SUMMARY OF TALLY

Total Length tallied:	1202.36
Casing Stick-Up:	2.36
Length of Casing Cut-Off:	—
Bottom of Well:	1200.00
Screened Interval:	1200.00 - 498.41
Total Screen in Hole:	701.59

Sensor Types:
- Annular Conductivity Device (ACD), installed as pairs with 3 ft spacing
- Conductivity Sensor (CS) 4 sensors with sing lead 20 ft spacing
- Electrical Resistivity Tomography (ERT)

Endcap - 316L Stainless Steel
Screen - SCH 80 5.56" OD, 4.77" ID, 0.020" Slot
FRP - 5.44" O.D. 4.74" ID 6.59" OD on couplers
PVC/FRP Transition -

HALEY ALDRICH

HALEY ALDRICH

PIPE TALLY

Project Name.:	Project No.:
Well No.: D-04	Date: 1-15-18
Location:	Pipe Talley for: well install
Total Depth:	Geologist:

Type of Connections: ☐ Welded ☐ T+C ☐ Flush Thread ☐ Other

Pipe	✓	Length (ft)	Length Σ (ft)	Pipe Type	Dist. from sensor bottom to bottom of pipe (feet)	Sensor Type (ACD, CS, ERT)	Sensor ID	Wire Lead ID	Depth of Sensor (feet bgs)
31	✓	20.04	601.46	0.020 screen					
32	✓	20.02	621.48		7.14	ERT	2		591.40
33	✓	20.03	641.51						
34	✓	20.03	661.54						
35	✓	20.02	681.56						
36	✓	20.03	701.59		2.15	ERT	1		516.29
37	✓	0.50	702.09	PVC/FRP transition					
38	✓	29.24	731.33	FRP					
39	✓	29.08	760.41						
40	✓	29.03	789.44						409.96
41	✓	29.07	818.51		0.60, 8.00, 11.49	CS	4, 3		390.14
42	✓	29.12	847.63		11.49	CS	2, 1		370.00
43	✓	29.08	876.71		2.20	CS	1		350.17
44	✓	29.07	905.78						
45	✓	29.14	934.92		19.19, 22.14	ACD	2, 1, 19.24, 22.24		
46	✓	29.14	964.06						
47	✓	29.22	993.28						
48	✓	29.20	1022.48						
49	✓	29.18	1051.66						
50	✓	29.17	1080.83						
51	✓	28.98	1109.81						
52	✓	29.10	1138.91						
53	✓	29.09	1168.00						
54	✓	29.21	1197.21						
55	✓	5.15	1202.36						
56		10							

Notes:

SUMMARY OF TALLY

Total Length tallied:	1202.36
Casing Stick-Up:	2.36
Length of Casing Cut-Off:	
Bottom of Well:	1200.00
Screened Interval:	
Total Screen in Hole:	

Sensor Types: Annular Conductivity Device (ACD), installed as pairs with 3 ft spacing
Conductivity Sensor (CS) 4 sensors with sing lead 20 ft spacing
Electrical Resistivity Tomography (ERT)

HALEY ALDRICH

10' - 9.33
18" - 0.72
coupler - 0.81

HALEY ALDRICH

Casing Layout

Project Name.:	Florence Copper INC	**Project No.:**	129687-007
Well No.:	O-04	**Date:**	1-15-18 Through 1-16-18
Location:	Florence AZ	**Layout for:**	Well Install
Total Depth:	1200	**Geologist:**	C Price and G Foushee

Pipe Length		Depth BGS
		758.80
20.03	23	778.83
20.03	22	798.86
20.04	21	818.90
20.04	20	838.94
20.04	19	858.98
20.04	18	879.02
20.04	17	899.06
20.03	16	919.09
20.05	15	939.14
20.05	14	959.19
20.03	13	979.22
20.04	12	999.26
20.04	11	1019.30
20.05	10	1039.35
20.04	9	1059.39
20.03	8	1079.42
20.04	7	1099.46
20.03	6	1119.49
20.05	5	1139.54
20.05	4	1159.59
20.03	3	1179.62
20.03	2	1199.65
0.35	1	1200.00

Pipe Length		Depth BGS
		235.94
29.14	46	265.08
29.14	45	294.22
29.07	44	323.29
29.08	43	352.37
29.12	42	381.49
29.07	41	410.56
29.03	40	439.59
29.08	39	468.67
29.24	38	497.91
0.50	37	498.41
20.03	36	518.44
20.02	35	538.46
20.03	34	558.49
20.03	33	578.52
20.02	32	598.54
20.04	31	618.58
20.03	30	638.61
20.03	29	658.64
20.03	28	678.67
20.03	27	698.70
20.03	26	718.73
20.03	25	738.76
20.04	24	758.80

Pipe Length		Depth BGS
		-12.36
10.00	56	-2.36
5.15	55	2.79
29.21	54	32.00
29.09	53	61.09
29.10	52	90.19
28.98	51	119.17
29.17	50	148.34
29.18	49	177.52
29.20	48	206.72
29.22	47	235.94

Sensor Type	Sensor ID	Pipe #	Distance from Bottom of Sensor to Bottom of Pipe	Depth of Sensor (BGS)
ERT	10	2	6.24	1193.41
ERT	9	6	2.10	1117.39
ERT	8	9	18.10	1041.29
ERT	7	13	11.92	967.30
ERT	6	17	6.91	892.15
ERT	5	21	1.93	816.97
ERT	4	24	16.94	741.86
ERT	3	28	12.23	666.44
ERT	2	32	7.14	591.40
ERT	1	36	2.15	516.29
CS	4	41	0.60	409.96
CS	3	41	20.42	390.14
CS	2	42	11.49	370.00
CS	1	43	2.20	350.17
ACD	2	45	19.19	275.03
ACD	1	45	22.19	272.03

Pipe Number	Type
1	SS End Cap
2 - 36	PVC SCH 80 Screen 0.020
37	SS: PVC/Fiberglass Transition
38-55	5" FRP

HALEY ALDRICH

ESTIMATED ANNULAR MATERIAL RECORD

Project Name: EC1 PTF **Project #.:** 129687-007 **Date:** 1/18/18
Well No.: 0-04 **Geologist:** S Kenney / G. Foushee

ANNULAR VOLUME CALCULATIONS

Total Depth of Borehole [T]:	1220 feet	Total Cased Depth:	1200.00 feet
Borehole Diameter [D]:	14 ~~12.25~~ SK 1/19/18 inches	Rat Hole Volume [R=(D²) 0.005454*L_rh]:	~~10.4~~ Ft³
Screen Length [L_s]:	701.59 feet	Rat Hole Length [L_rh]	13 ~~20~~ feet
Screen Diameter [d_s]:	5 inches	Camera Tube Length [L_ct]	– feet
Casing Length [L_c]	498.41 feet	Camera Tube Diameter [d_ct]	– inches
Casing Diameter [d_c]	5 inches		

Screen Annular Volume (A_s): $(D^2-d_s^2)\ 0.005454$ = ***~~0.65~~ SK 1/19/18 0.93 Ft³/Lin. Ft

Casing Annular Volume (A_c): $(D^2-d_c^2)\ 0.005454$ = ***~~0.65~~ SK 1/19/18 0.93 Ft³/Lin. Ft

Casing/Cam.Tube Annular Volume (A_{c+ct}): $(D^2-d_c^2-d_{ct}^2)\ 0.005454$ = – Ft³/Lin. Ft

EQUATIONS

2,700 lbs. Silica Sand = 1 cubic yard = 27 cubic feet

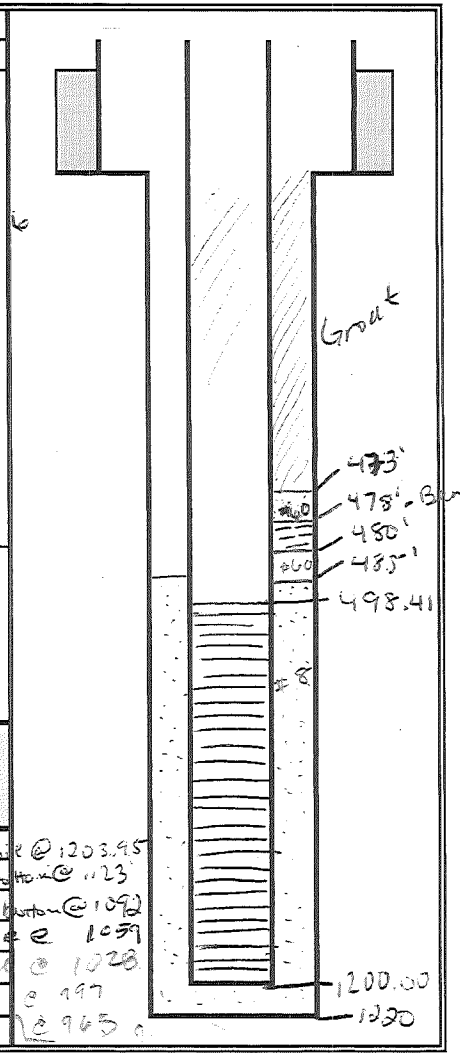
[1] Volume of bag (Ft^3) = bag weight/100

[2] Calculated depth = Previous Calculated depth - (v/A)

Bentonite Sack = 0.69 ft^3

Silica Sand Super Sack = 3000 lbs.

No.	✓	Weight of Bag (lbs.)	Volume of Bag[1] (v) (ft³)	Total Vol. of Bags (ft³)	Calculated Depth[2] (ft bls)	Tagged Depth (ft bls)	Comments
1	✓	3000	30	30	**~~1179~~ 1170	1165	#8 gravel Super Sack tremmie @ 1203.95
2	✓	3000	30	60	1124	1126	#8 gravel tremmie bottom @ 1123'
3	✓	3000	30	90	1078	1097	#8 gravel tremmie bottom @ 1092
4	✓	3000	30	120	1021		#8 gravel tremmie @ 1059
5	✓	3000	30	150	1005	1075	#8 gravel tremmie @ 1028
6	✓	3000	30	180	1050		#8 gravel @ 997
7	✓	3000	30	210	1009	1009	#8 gravel @ 965



**SK 1/18/18 - Rat hole volume update due to information about a bottom of borehole tag on 1/16/18 that was 1213' bgs. Original calculations were based on a borehole depth of 1220' bgs from SW Exploration log.

*** Update with corrected borehole diameter of 14 inches

*pulled (2) tremmie pipe as gravel was up to tremmie pipe. Bottom 1156'

K:\Templates\Field Forms\Well Inst & Testing Forms.xls

HALEY ALDRICH

ESTIMATED ANNULAR MATERIAL RECORD (Continued)

Project Name: FCI PTF Project No.: 129687-007 Geologist: G. Fischer / S. Karey
Well No.: O-04 Date: 1/18/18 - 1/19/18

No.	✓	Weight of Bag (lbs.)	Volume of Bag[1](v) (ft³)	Total Vol. of Bags (ft³)	Calculated Depth[2] (ft bls)	Tagged Depth (ft bls)	Comments
9	✓	3000	30	240	962		TREMIE @ 903' / 912.4'
9	✓	3000	30	270	916	956	TREMIE @ 870' / 879.4'
10	✓	3000	30	300	910		TREMIE @ 838' 848.4'
11	✓	3000	30	330	864	860	TREMIE @ 804' 814.4'
12	✓	3000	30	360	814		TREMIE @ 770' (783.4')
13	✓	3000	30	390	768	800	TREMIE @ 741' (753.4')
14	✓	3000	30	420	708		
15	✓	3000	30	450	708	735	TREMIE @ 713' bgs
16	✓	3000	30	480	685		#8 gravel, ~~tremie~~ 1/19/18
17	✓	3000	30	510	643	666	#8 gravel, tremie @ 680' BGS, tremie @ 650' BGS, tremie 617'
18	✓	3000	30	540	634 *		#8 gravel,
19	✓	3000	30	570	602 *	601	#8 gravel, tremie @ 586' BGS, bottom tremie @ 557'
20	✓	3000	30	600	569 *		#8 gravel, tremie @ 526'
21	✓	3000	30	630	537 *	534	#8 gravel, tremie @ 495'
22	✓	3000	30	660	502 *	503	#8 gravel, tremie @ 463'
23	✓	1500	15	675	487 *	495	#8 gravel
	✓	750	7.5	682.5	487 *	490	#8 gravel
	✓	66.7	0.667	685.5	488 *	488	#8 gravel 5 gallon buckets (x3)
~~24~~		~~1000~~	~~10~~	~~695.5~~	*	~~511~~	~~Swab 30 min first interval 1175 - 1075' BGS~~
24	✓	~~1000~~ 750	~~10~~ 7.5	~~695.5~~ 705	~~503~~ *	502	#8 gravel 1/3 SuperSack
25	✓					493	1/3 SuperSack
26	✓					491	—— 1/4 Sack

Notes: * caliper log has borehole diameter at ± 1/4 inches (0.93 ft³/linear foot)

HALEY ALDRICH

2205 - 2215

3

ESTIMATED ANNULAR MATERIAL RECORD (Continued)

Project Name: FCI PTF **Project No.:** 129687 **Geologist:** S. Fousse / S. Kenney

Well No.: D-04 **Date:** 1/19/18 -

No.	✓	Weight of Bag (lbs.)	Volume of Bag[1](v) (ft^3)	Total Vol. of Bags (ft^3)	Calculated Depth[2] (ft bls)	Tagged Depth (ft bls)	Comments
22		100 x 5	1	5		495'	ADD 5 - 5 gal Buckets, SWAB 10 MIN - 1175-1075'
						485'	MOVE TO SWAB 1075-975 FOR 15 MIN.
						485	SWAB SAME ZONE FOR ANOTHER 10, THEN RETAG →
						495	NO CHANGE, SO PROCEED TO 975-875, 15 MIN,
						495	TAG, THEN 10 MORE IN SAME INTERVAL -
						495	PROCEED TO PO 15 MIN 975-875 = TAG IS SMART
						495	→ 10 MIN. SAME INTERVAL - WHEN TAG 4 BY,
						490	PROCEED TO 875-775. FOR 15 MIN, TAG, REPEAT
						490	15 MIN SAME INTERVAL - REPEAT AGAIN
						490	SAME LEVEL - SO MOVE TO 775-675
						495	15 MIN & TAG, AM
23		100 x 5		5		491	ADD 5 gal x 5 Buckets,
24		100 x 5		5		486	ADD 5 gal x 5 Buckets, SWAB 775-675
						486	SWAB 675-575 15 MIN
						492	SWAB 675-595 15 MIN.
						495	SWAB 675-575 15 MIN, MOVE UP
						491	575-500 - 15 MIN - AM
25		100 x 6		5		497	ADD 6 Buckets THEN SWAB 15 MIN
						485	SWAB 10 MORE MINUTES
						495	READY TO INSTALL CHOKE
26	✓	50	0.5	3	482	485'	#60 Sand 50 lb bags (x6)
27	✓	50	0.5	2	483	480'	#60 Sand 50 lb bags (x4)

Notes:

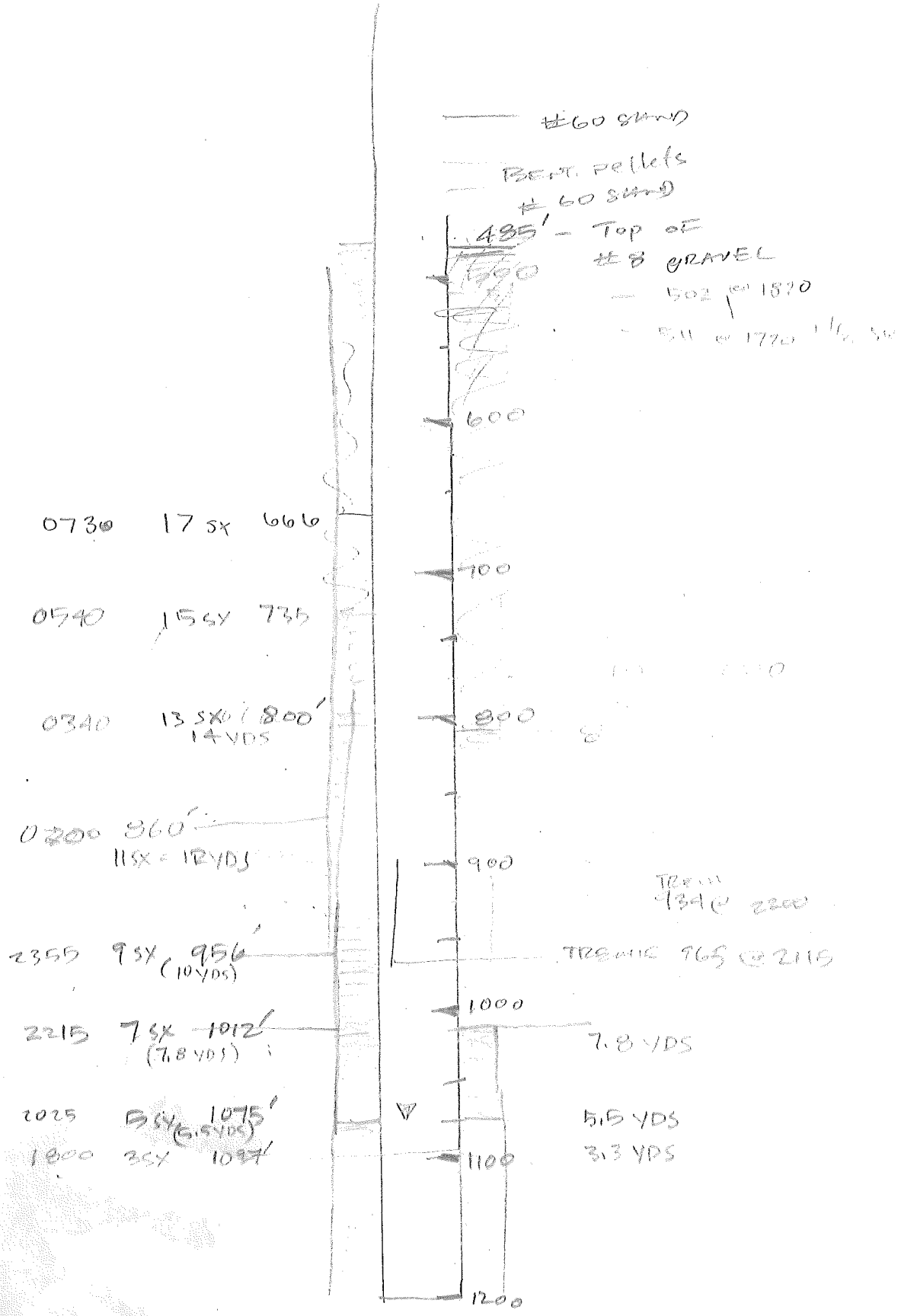

#60 SAND
BENT. PELLETS
#60 SAND
485' - TOP OF
#8 GRAVEL
502 @ 1570
511 @ 1720 1/2 SK
600
700
800
900
1000
1100
1200
0730 17 SX 666
0540 15 SX 735
0340 13 SX @ 800'
14 YDS
0200 960'
11 SX = 12 YDS
2355 9 SX 956'
(10 YDS)
2215 7 SX 1012'
(7.8 YDS)
2025 5 SX 1075'
(5.5 YDS)
1800 3 SX 1097'
7.8 YDS
5.5 YDS
3.3 YDS
TREMIE
434 @ 2200
TREMIE 965 @ 2115

Fig 1

473
J.76

ESTIMATED ANNULAR MATERIAL RECORD (Continued)

Project Name: EQ PTF **Project No.:** 129687 **Geologist:** S. Kaney

Well No.: D-04 **Date:** 1/26/18

No.	✓	Weight of Bag (lbs.)	Volume of Bag[1](v) (ft^3)	Total Vol. of Bags (ft^3)	Calculated Depth[2] (ft bls)	Tagged Depth (ft bls)	Comments
28	✓					478'	1-bucket bentonite Pel-Plug (5-gal bucket).
29	✓	50	0.5	3.5	475*	477'	50 lb #60 sand (x7)
30	✓	50	0.5	2.5	475*	476'	50 lb #60 sand (x5) SC-126013
30	✓	50	0.5	3.5	473*	473'	50 lb #60 sand (x7)
							120 barrels of grout / 497 sacks

Notes: *based on 16" borehole in caliper log (1.26 ft³/linear foot)

HALEY ALDRICH

CEMEX

58776436

0-04

Plant:	Begin Loading:	To Job:	Arrive Job:	Start Unload:	Finish Unload:	Leave Job:	Return Plant:

Customer Code: Customer Name: Customer Job Number: Order Code / Date:

Project Code: Project Name: Project P.O. Number: Order P.O. Number:

Ticket Date: Delivery Address: Map Page: Map/Row/Column:

Delivery Instructions: Dispatcher:

Ticket Number:

Due On Job:	Slump:	Truck Number:	Driver Number:	Driver Name:	End Use:

LOAD QUANTITY	CUMULATIVE QUANTITY	ORDERED QUANTITY	MATERIAL CODE	PRODUCTION DESCRIPTION	UOM	UNIT PRICE	AMOUNT

☐ Cash ☐ Check ☐ Charge	Check # / Auth Code:	Signature of Driver Receiving Cash:	Cash Received:	Total COD Order Amount to Collect Without Standby Charges:

Comments:

WATER ADDED: _____ GAL YARDS IN DRUM: _____ WHEN ADDED.

_____ SIGNATURE

CURB LINE CROSSED AT OWNER'S/AGENT'S REQUEST:

_____ SIGNATURE

❑ LOAD WAS TESTED BY: _____

Notice: Our drivers will make every effort to place materials where the customer designates, but the Company assumes no responsibility for damages inside curb or property line. Customer agrees to the terms of sale and delivery and accepts concrete as is. Due to important factors which are out of our control after delivery, this Company will not accept any responsibility for the finished results. No credit for returned concrete. Buyers exceptions and claims shall be deemed waived unless made to us in writing within one business day after the receipt of materials.

SPECIAL TERMS: Any water added is at customers own risk. If water is added on job, concrete strength is no longer guaranteed. **WARNING**: Product may cause skin and/or eye irritation. **CAUTION**: Material may be hazardous to your safety and health. Please refer to the backside of this ticket for important safety handling information, and to the material safety data sheets for additional information.

AUTHORIZED SIGNATURE:

Ⓧ

68UNIVERSAL

CUSTOMER

7241141

4108 2803

BASIC ENERGY SERVICES

3451 LeTourneau
Gillette, WY 82718
307-682-5258

Cementing Ticket No. 1719 21371A

Date	Customer Order No.		Sect.	Twp.	Range	Truck Called Out	On Location	Job Began	Job Completed
01-20-18						7:45	8:00	13:30	15:30

Owner: Florance Copper Mine
Contractor: Hydro Resources
Charge To: Hydro West
Mailing Address:
City:
State:

Well No. & Form: 0-04
Place: copper mine
County: Pinal
State: AZ

Depth of Well: 1205
Depth of Job:
Casing (New / Used) Size: 5.5
Weight:
Size of Hole: 14
Amt. and Kind of Cement:
(Cement Left / in casing by) Request Necessity: 0 feet

Kind of Job: Monitoring Well
Drillpipe:
Tubing: 2 7/8
(Rotary / Cable)
Truck No.: 28983

Price Reference No.:
Price of Job: 1210
Second Stage:
Pump Truck Mileage: 3825
P.U. Mileage: 765
Other Charges:
Total Charges: 5,800.00

Remarks:
safety meeting held
rig up to tubing with hose and valve
pump 5 bbls to clear tubing
pump and mix 500 sks type 2/5 cement
displace .5 bbl thru mixer
rig down from tubing
wash up in cellar
good cement to surface
THANK YOU

Cementer: Bryan Hammond — Lead Yield: 1.38 — Lead Wt.: 14.6 — Lead Water: 6.8 — SV: 120
Helper: John Crahan — Tail Yield: — Tail Wt.: — Lead Water: — SV:
District: Gillette — State: Wy

The above job was done under supervision of the owner, operator, or his agent whose signature appears below.

Agent of contractor or operator

Sales Ticket for Materials Only

QUANTITY SACKS	BRAND AND TYPE	PRICE	TOTAL
16	Crew subsistance	500	8,000.00
12	Transportaton of cement	150	1,800.00
			0.00
			0.00
			0.00
	P.O. # 152614		0.00
			0.00
			0.00
			0.00
			0.00
			0.00
			0.00
			0.00
Plugs			0.00

Equipment #	HRS				
		500	Handling & Dumping	2.44	1,220.00
28983	1.5		Mileage		0.00
84127	1		Sub Total		16,820.00
			Discount		
			Sales Tax		
			Total		

Signature of operator

APPENDIX E

Geophysical Logs

Southwest Exploration Services, LLC

borehole geophysics & video services

COMPANY	FLORENCE COPPER
WELL ID	O-04
FIELD	FLORENCE COPPER
COUNTY	PINAL
STATE	ARIZONA

TYPE OF LOGS: E-LOG

MORE: NAT. GAMMA

LOCATION

SEC TWP RGE

OTHER SERVICES
3-ARM CALIPER
TEMPERATURE
FLUID RESISTIVITY
SONIC
DEVIATION

PERMANENT DATUM		ELEVATION	K.B.
LOG MEAS. FROM	GROUND LEVEL	ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	GROUND LEVEL		G.L.

DATE	1-15-18	TYPE FLUID IN HOLE	MUD
RUN No	1 & 2	MUD WEIGHT	N/A
TYPE LOG	E-LOG - NAT. GAMMA	VISCOSITY	N/A
DEPTH-DRILLER	1220 FT.	LEVEL	FULL
DEPTH-LOGGER	1220 FT.	MAX. REC. TEMP.	26.76 DEG. C
BTM LOGGED INTERVAL	1220 FT.	IMAGE ORIENTED TO:	N/A
TOP LOGGED INTERVAL	SURFACE	SAMPLE INTERVAL	0.2 FT.
DRILLER / RIG#	HYDRO RESOURCES	LOGGING TRUCK	TRUCK #200
RECORDED BY / Logging Eng.	A. OLSON / D. BEAM	TOOL STRING/SN	MSI E-LOG 40GRP SN 5019
WITNESSED BY	CHAD - H&A	LOG TIME:ON SITE/OFF SITE	6:45 A.M.

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	? IN.	SURFACE	40 FT.	14 IN.	STEEL	SURFACE	40 FT.
2	12 1/4 IN.	40 FT.	TOTAL DEPTH				
3							

COMMENTS:

.

Tool Summary:

Date	1-15-18	**Date**	1-15-18	**Date**	1-15-18		
Run No.	1	**Run No.**	2	**Run No.**	3		
Tool Model	MSI COMBO TOOL	**Tool Model**	MSI E-LOG 40GRP	**Tool Model**	MSI 60MM SONIC		
Tool SN	5543	**Tool SN**	5019	**Tool SN**	5050		
From	SURFACE	**From**	SURFACE	**From**	SURFACE		
To	1220 FT.	**To**	1220 FT.	**To**	1220 FT.		
Recorded By	A. OLSON	**Recorded By**	A. OLSON	**Recorded By**	A. OLSON		
Truck No	200	**Truck No**	200	**Truck No**	200		
Operation Check	1-12-18	**Operation Check**	1-12-18	**Operation Check**	1-12-18		
Calibration Check	1-12-18	**Calibration Check**	1-12-18	**Calibration Check**	N/A		
Time Logged	8:20 A.M.	**Time Logged**	9:30 A.M.	**Time Logged**	10:20 A.M.		

Date	1-15-18	**Date**		**Date**			
Run No.	4	**Run No.**	5	**Run No.**	6		
Tool Model	MSI DEVIATION	**Tool Model**		**Tool Model**			
Tool SN	3082	**Tool SN**		**Tool SN**			
From	SURFACE	**From**		**From**			
To	1220 FT.	**To**		**To**			
Recorded By	A. OLSON	**Recorded By**		**Recorded By**			
Truck No	200	**Truck No**		**Truck No**			
Operation Check	1-12-18	**Operation Check**		**Operation Check**			
Calibration Check	N/A	**Calibration Check**		**Calibration Check**			
Time Logged	12:00 P.M.	**Time Logged**		**Time Logged**			

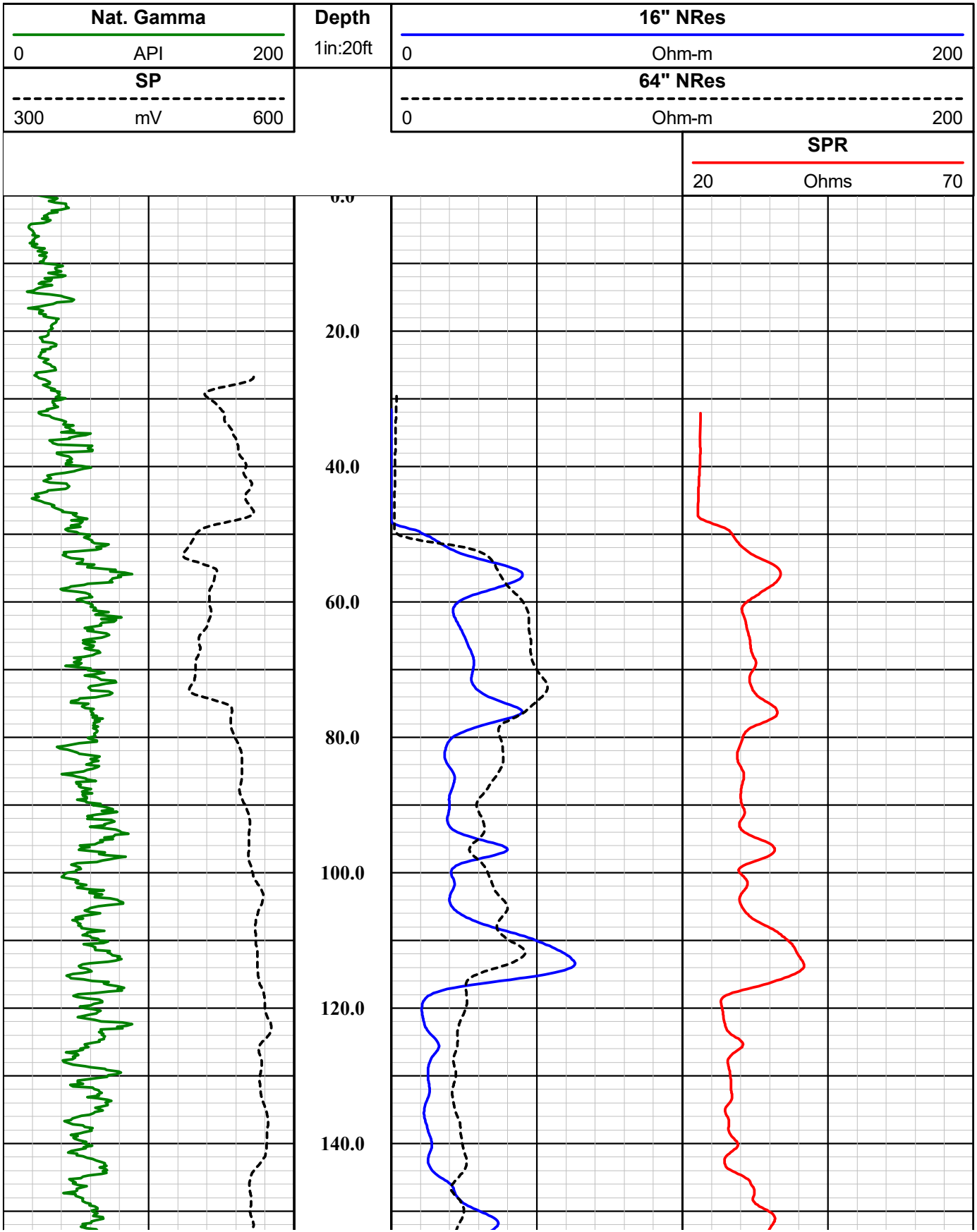
Additional Comments:

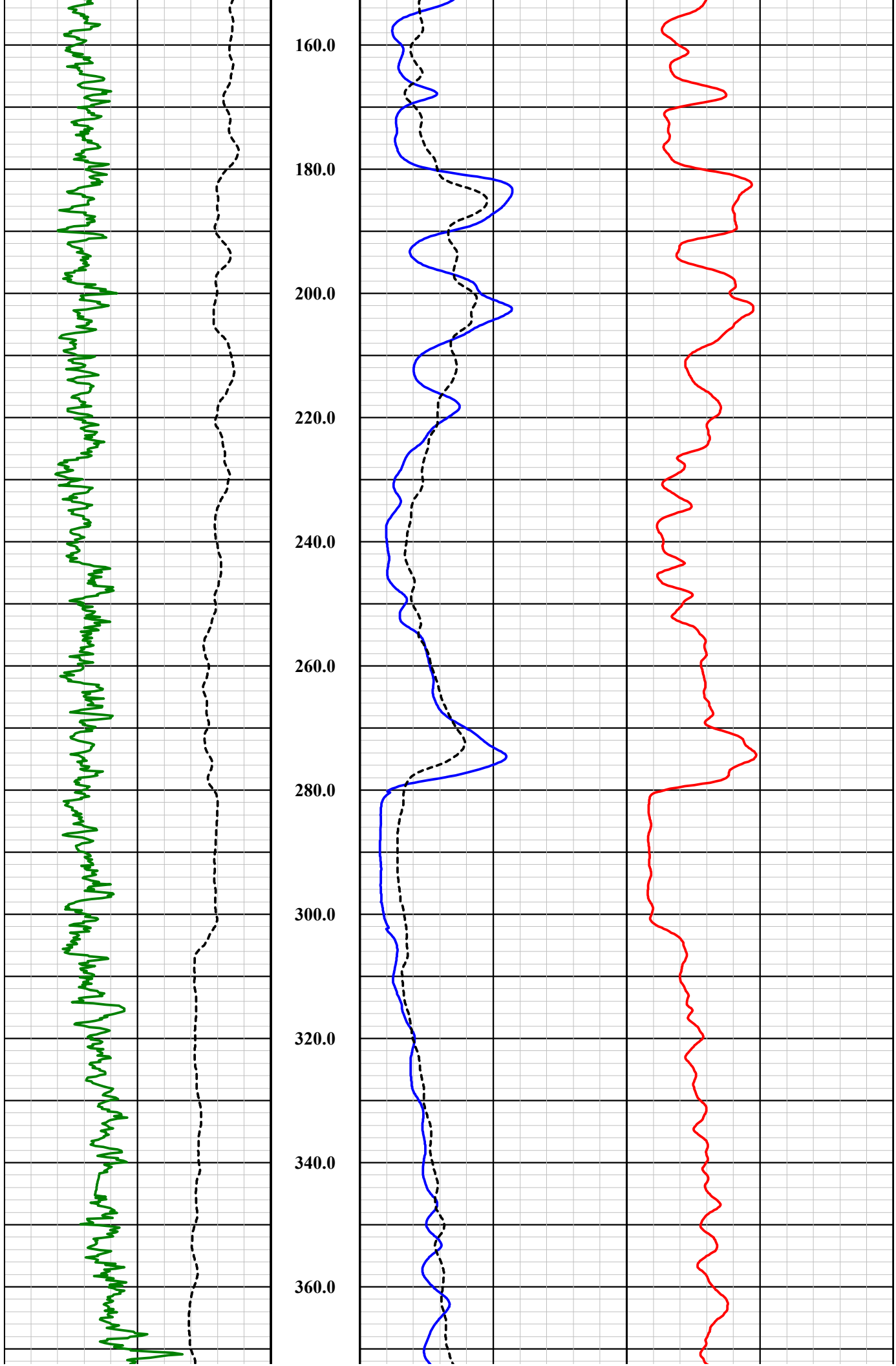
Caliper Arms Used: 15 IN. **Calibration Points:** 8 IN. & 23 IN.

E-Log Calibration Range: 1-1000 OHM-M **Calibration Points:** 1 & 1000 OHM-M

Disclaimer:

All interpretations of log data are opinions based on inferences from electrical or other measurements. We do not guarantee the accuracy or correctness of any interpretations or recommendations and shall not be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our employees or agents. These interpretations are also subject to our general terms and conditions set out in our current Service Invoice.

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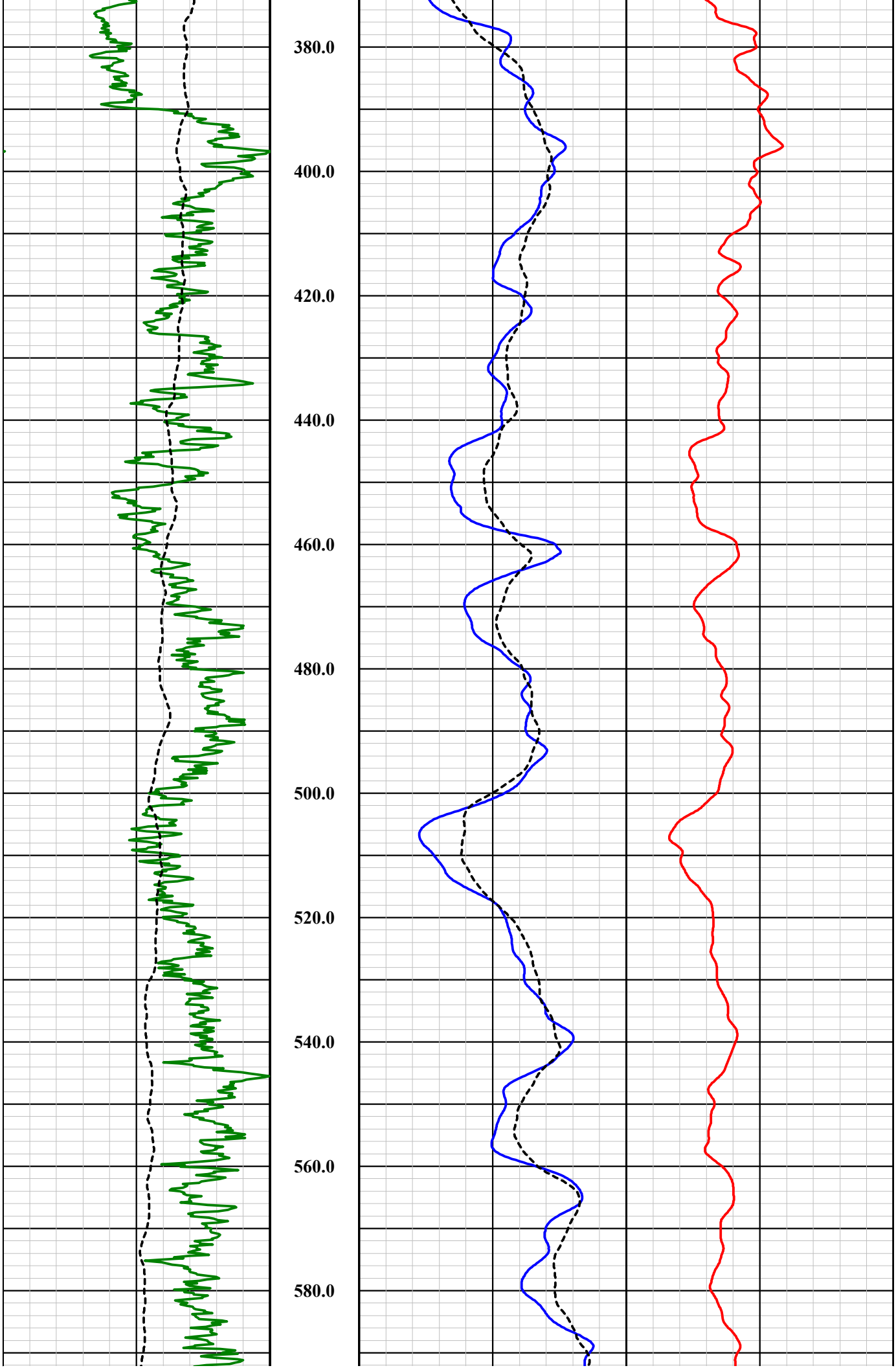
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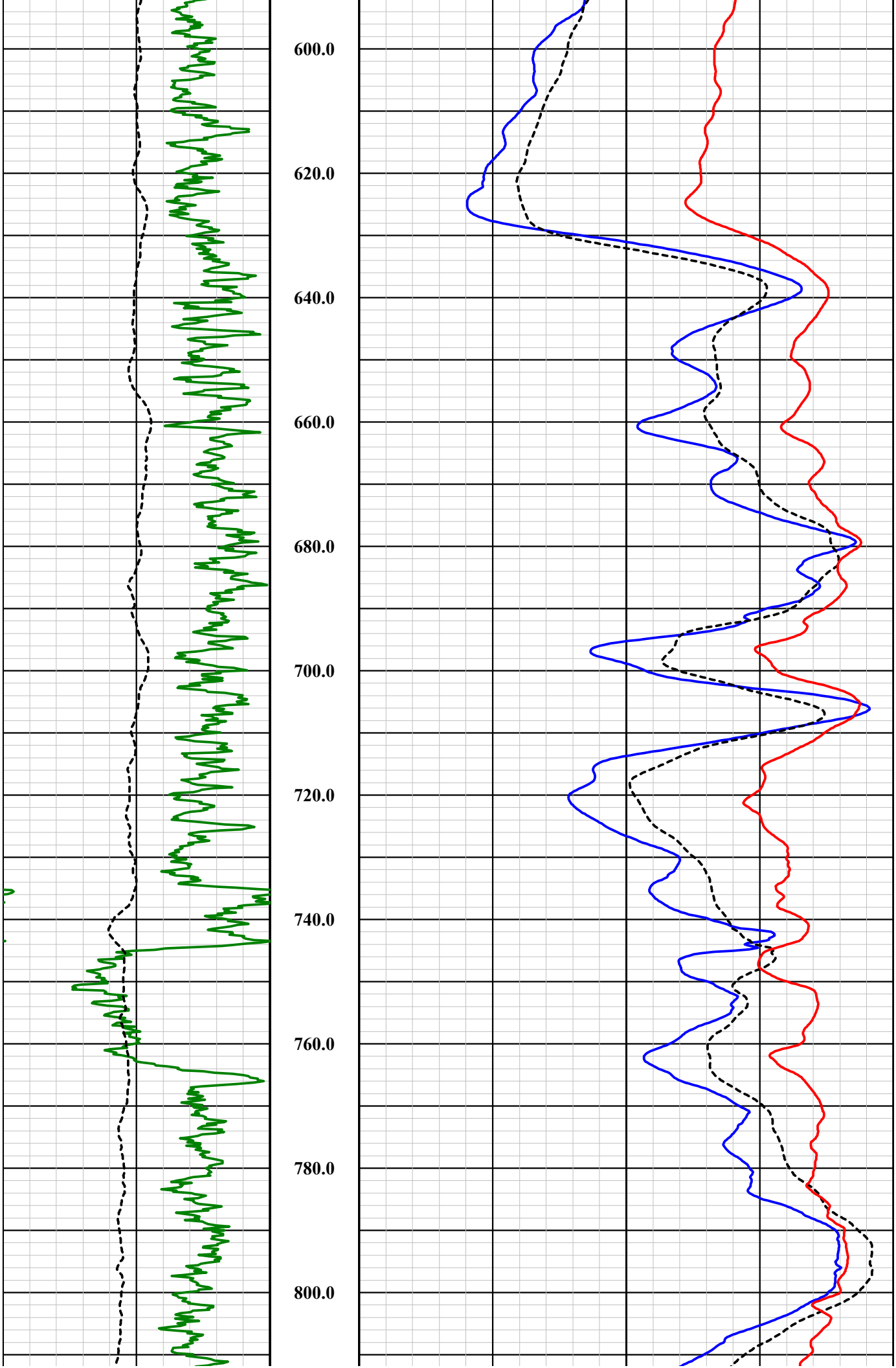
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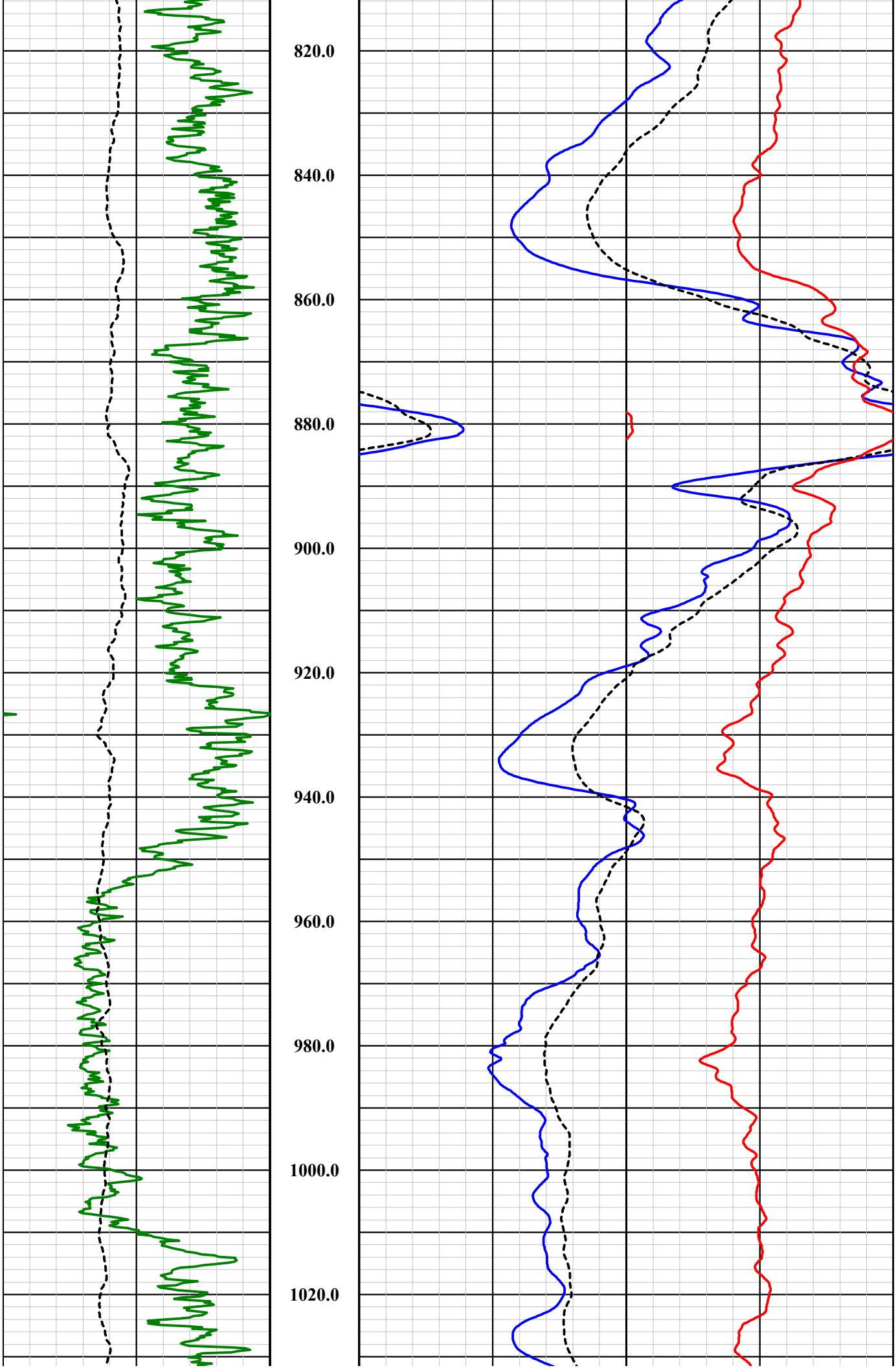
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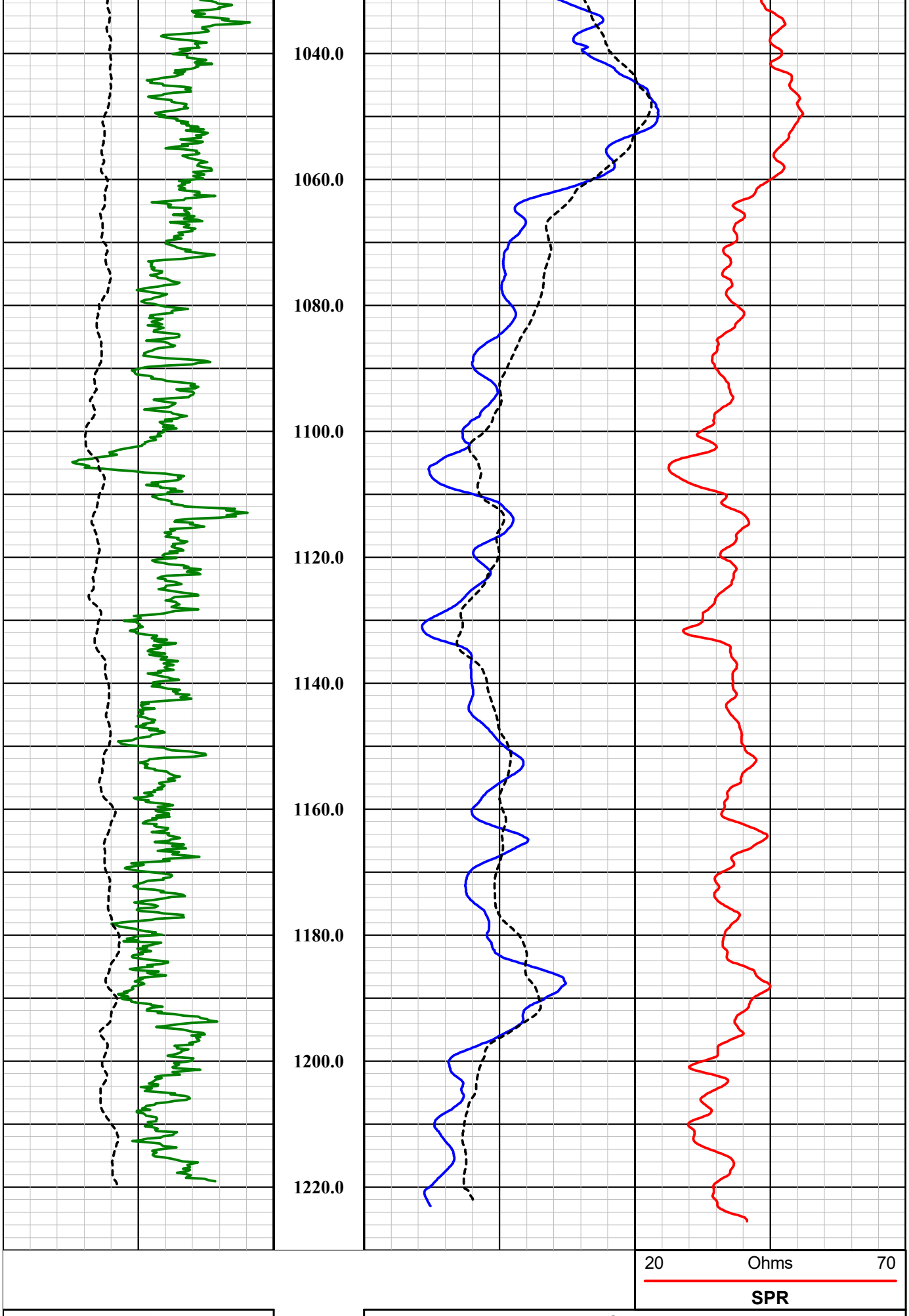
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mV
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SP
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Ohm-m
200
64" NRes
0
API
200
0
Ohm-m
200

0	API	200	1in:20ft	0	Ohm-m	200
Nat. Gamma			Depth	16" NRes		

MSI 40GRP E-Log Tool

Tool SN: 5019, 5513, & 5514

Probe Top = Depth Ref.

Four Conductor MSI Probe Top

Bridle connects to wireline cablehead: Wireline armor is the B Electrode.

Bridle Electrode (N Electrode)

Probe Length = 1.98 m or 6.5 ft
Bridle Length = 7.88 m or 25.86 ft

Probe Weight = 7.3 kg or 16.0 lbs

Can only be collected in fluid

Isolation Bridle

Temperature Rating: 70 Deg C (158 Deg F)
Presure Rating: 200 bar (2900 psi)

64" Normal Resistivity Electrode/Spontaneous Potential Electrode (M Electrode)

Electrode Measuring Points (from bottom of probe)

- Spontaneous Potential (SP): 1.777 m or 5.81 ft
- 16" Normal Resistivity (16" NRes): 0.3548 m or 1.16 ft
- 64" Normal Resistivity (64" NRes): 0.9644 m or 3.16 ft
- Single Point Resistance (SPR): 0.152 m or 0.50 ft
- Natural Gamma Ray (Nat. Gamma): 0.73 m or 2.39 ft

Natural Gamma Ray

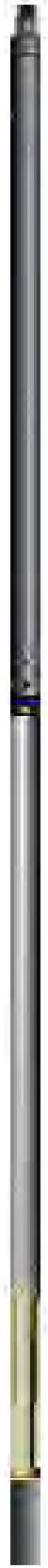
16" Normal Resistivity Electrode (M Electrode)

Current Electrode/Single Point Resistance Electrode (A Electrode)

1.63" or 40 mm Diameter (41.4 mm with neoprene heat shrink and electrical tape)

MSI Gamma-Caliper-Temperature-Fluid Resistivity

Probe Top = Depth Ref.



Single Conductor MSI Probe Top

Probe Length = 2.59 m or 8.5 ft
Probe Weight = 6.80 kg or 15.0 lbs

Natural Gamma and Caliper can only be collected logging up hole.

Fluid Temperature/Resistivity can only be collected logging down hole.

Temperature Rating: 70 Deg C (158 Deg F)
Presure Rating: 200 bar (2900 psi)

Natural Gamma Ray = 0.76 m (29.75 in)

NOTE: Lengths on a particular tool may vary from those listed on this document due to probe sizes and styles utilized

3-Arm Caliper = 1.44 m (56.75 in)

Distance from tool top: 2.20 m (86.5 in)

Available Arm Sizes: 3", 9", and 15"

TFR (Temperature/Fluid Resistivity) = 0.39 m (15.5 in)

1.375" or 34.9 mm Diameter

Southwest Exploration Services, LLC
borehole geophysics & video services

Company	FLORENCE COPPER
Well	O-04
Field	FLORENCE COPPER
County	PINAL
State	ARIZONA

Final E-Log Summary

Southwest Exploration Services, LLC

borehole geophysics & video services

COMPANY	FLORENCE COPPER
WELL ID	O-04
FIELD	FLORENCE COPPER
COUNTY	PINAL
STATE	ARIZONA

TYPE OF LOGS: GAMMA - CALIPER
MORE: TEMP. / FLUID RES.

LOCATION

SEC TWP RGE

OTHER SERVICES
E-LOG
SONIC
DEVIATION

PERMANENT DATUM	ELEVATION	K.B.
LOG MEAS. FROM	GROUND LEVEL ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	GROUND LEVEL	G.L.

DATE	1-15-18	TYPE FLUID IN HOLE	MUD
RUN No	1	MUD WEIGHT	N/A
TYPE LOG	GAMMA - CALIPER - TFR	VISCOSITY	N/A
DEPTH-DRILLER	1220 FT.	LEVEL	FULL
DEPTH-LOGGER	1220 FT.	MAX. REC. TEMP.	26.76 DEG. C
BTM LOGGED INTERVAL	1220 FT.	IMAGE ORIENTED TO:	N/A
TOP LOGGED INTERVAL	SURFACE	SAMPLE INTERVAL	0.2 FT.
DRILLER / RIG#	HYDRO RESOURCES	LOGGING TRUCK	TRUCK #200
RECORDED BY / Logging Eng.	A. OLSON / D. BEAM	TOOL STRING/SN	MSI COMBO TOOL SN 5543
WITNESSED BY	CHAD - H&A	LOG TIME:ON SITE/OFF SITE	6:45 A.M.

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	? IN.	SURFACE	40 FT.	14 IN.	STEEL	SURFACE	40 FT.
2	12 1/4 IN.	40 FT.	TOTAL DEPTH				
3							

COMMENTS:

.

Tool Summary:

Date	1-15-18	**Date**	1-15-18	**Date**	1-15-18	**Date**		**Date**	
Run No.	1	**Run No.**	2	**Run No.**	3	**Run No.**	4	**Run No.**	5
Tool Model	MSI COMBO TOOL	**Tool Model**	MSI E-LOG 40GRP	**Tool Model**	MSI 60MM SONIC	**Tool Model**	MSI DEVIATION	**Tool Model**	
Tool SN	5543	**Tool SN**	5019	**Tool SN**	5050	**Tool SN**	3082	**Tool SN**	
From	SURFACE	**From**	SURFACE	**From**	SURFACE	**From**	SURFACE	**From**	
To	1220 FT.	**To**	1220 FT.	**To**	1220 FT.	**To**	1220 FT.	**To**	
Recorded By	A. OLSON	**Recorded By**	A. OLSON	**Recorded By**	A. OLSON	**Recorded By**	A. OLSON	**Recorded By**	
Truck No	200	**Truck No**	200	**Truck No**	200	**Truck No**	200	**Truck No**	
Operation Check	1-12-18	**Operation Check**	1-12-18	**Operation Check**	1-12-18	**Operation Check**	1-12-18	**Operation Check**	
Calibration Check	1-12-18	**Calibration Check**	1-12-18	**Calibration Check**	N/A	**Calibration Check**	N/A	**Calibration Check**	
Time Logged	8:20 A.M.	**Time Logged**	9:30 A.M.	**Time Logged**	10:20 A.M.	**Time Logged**	12:00 P.M.	**Time Logged**	

Additional Comments:

Caliper Arms Used: 15 IN. **Calibration Points:** 8 IN. & 23 IN.

E-Log Calibration Range: 1-1000 OHM-M **Calibration Points:** 1 & 1000 OHM-M

Disclaimer:

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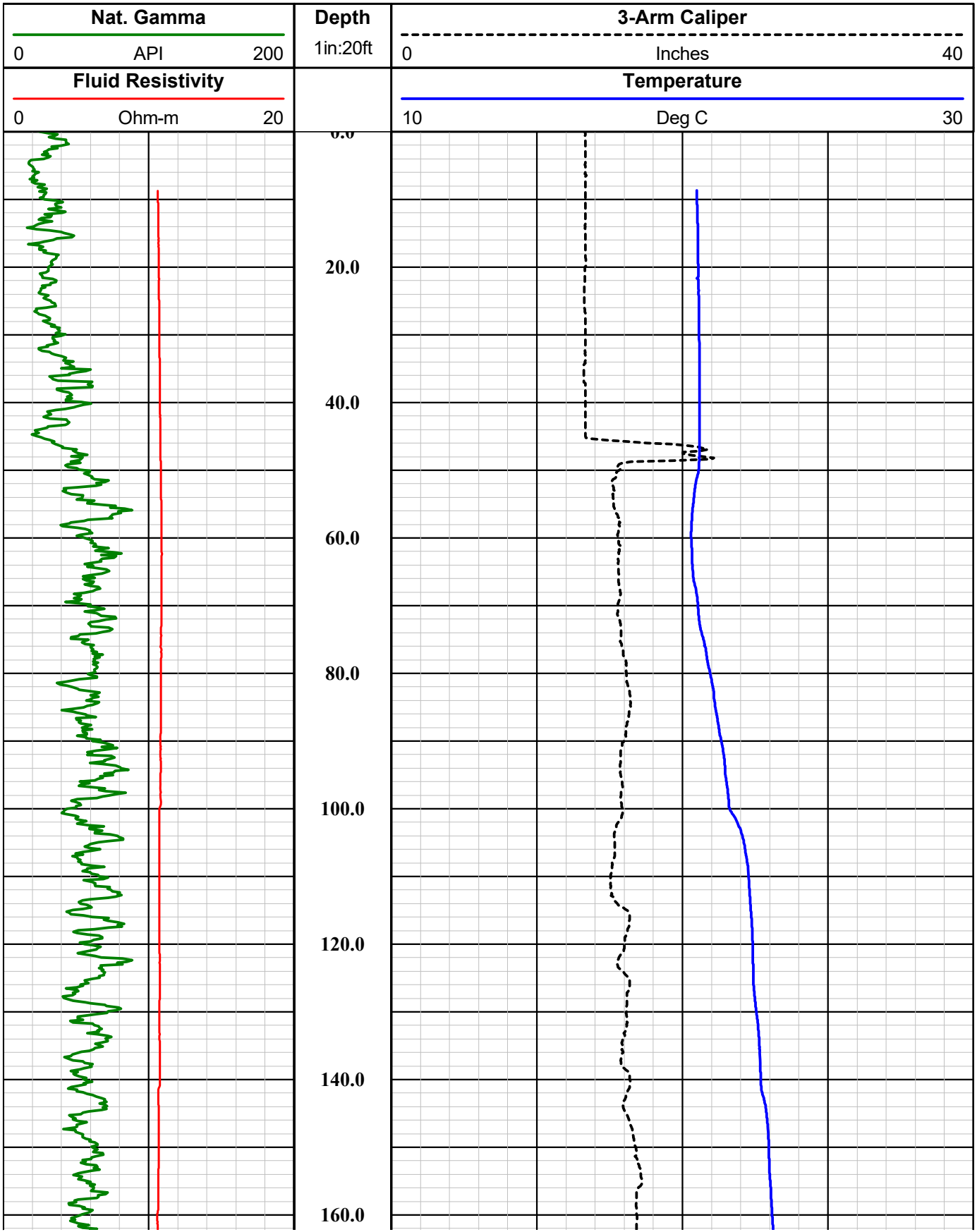

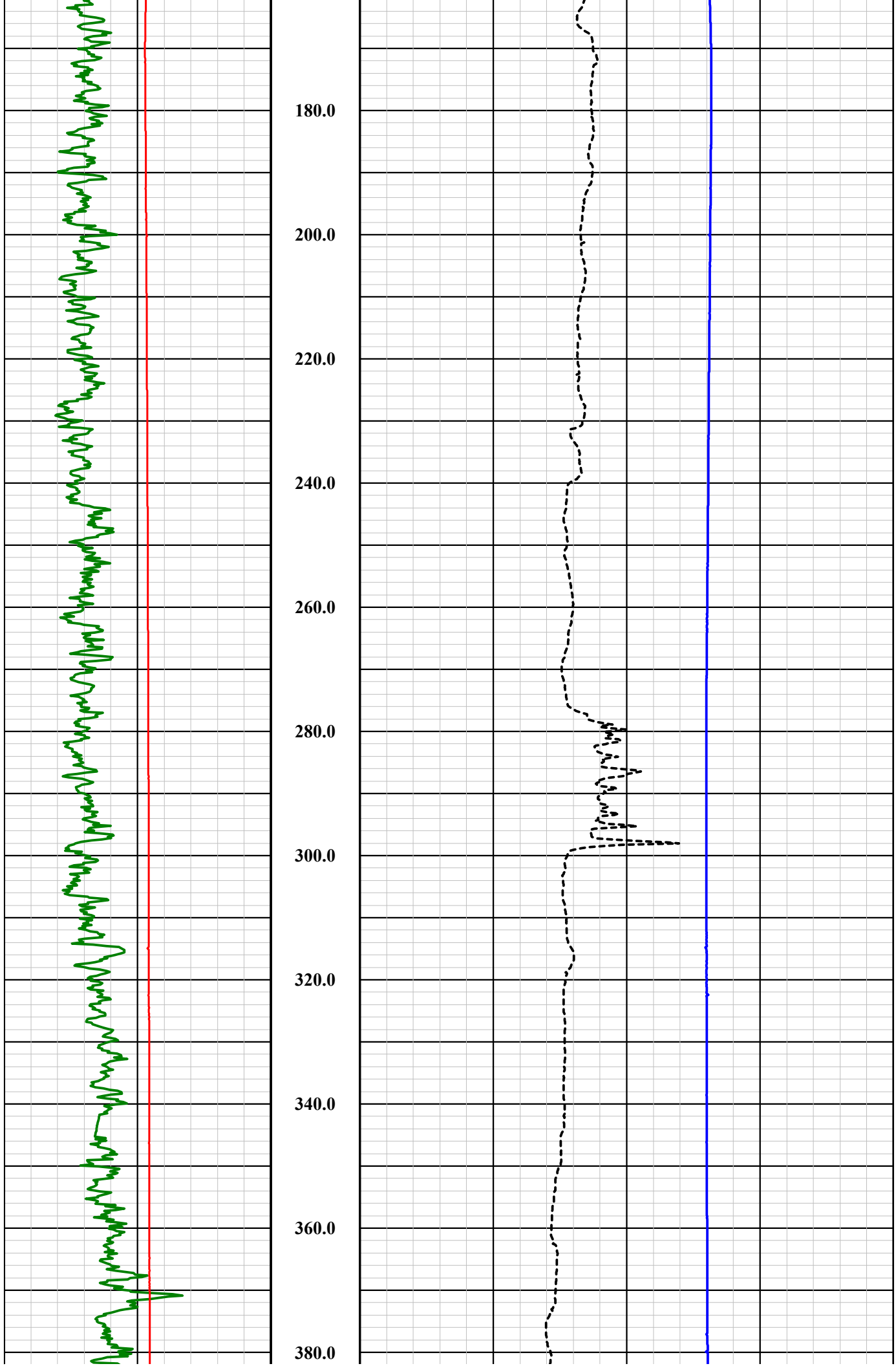
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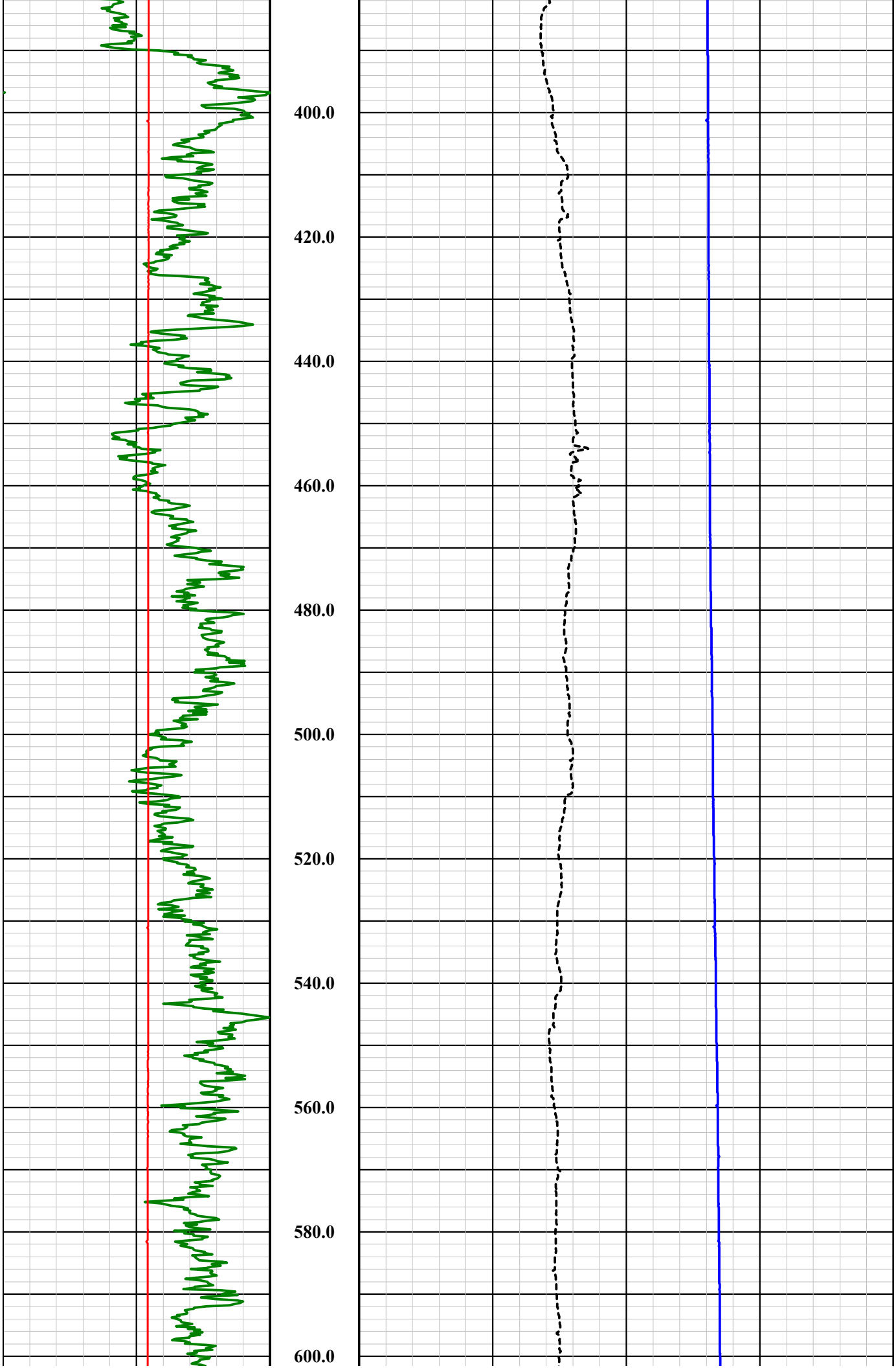
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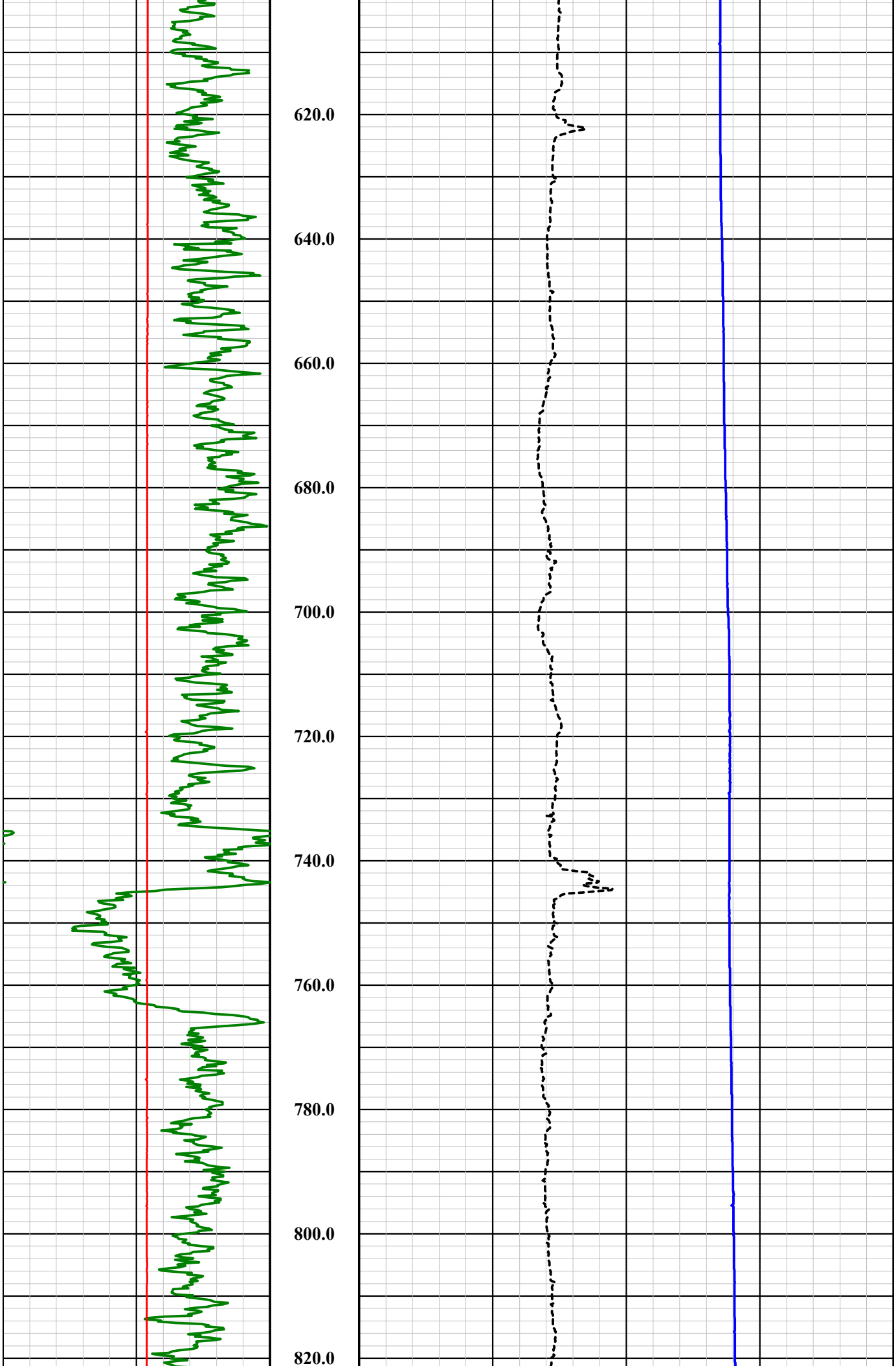
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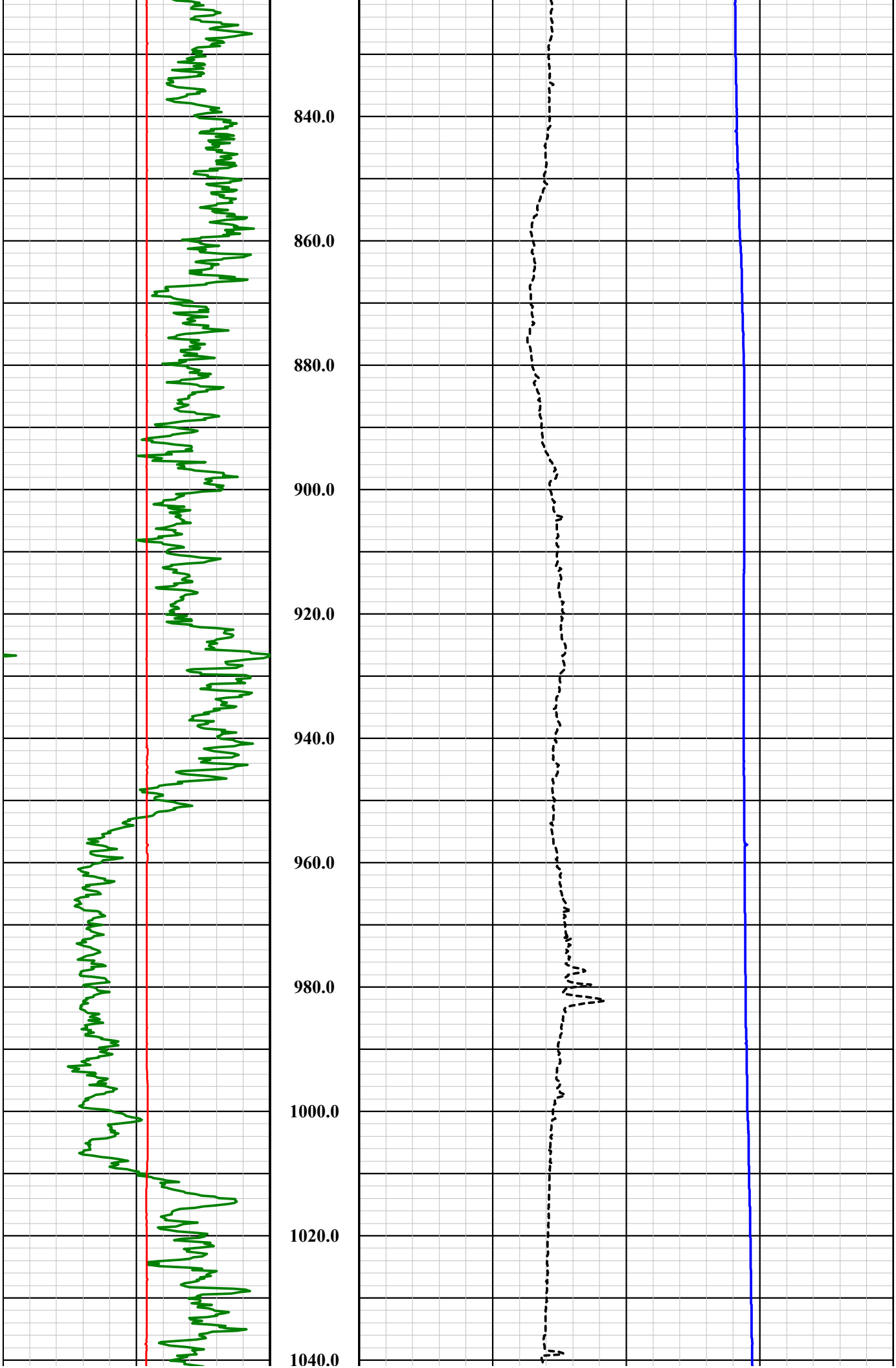
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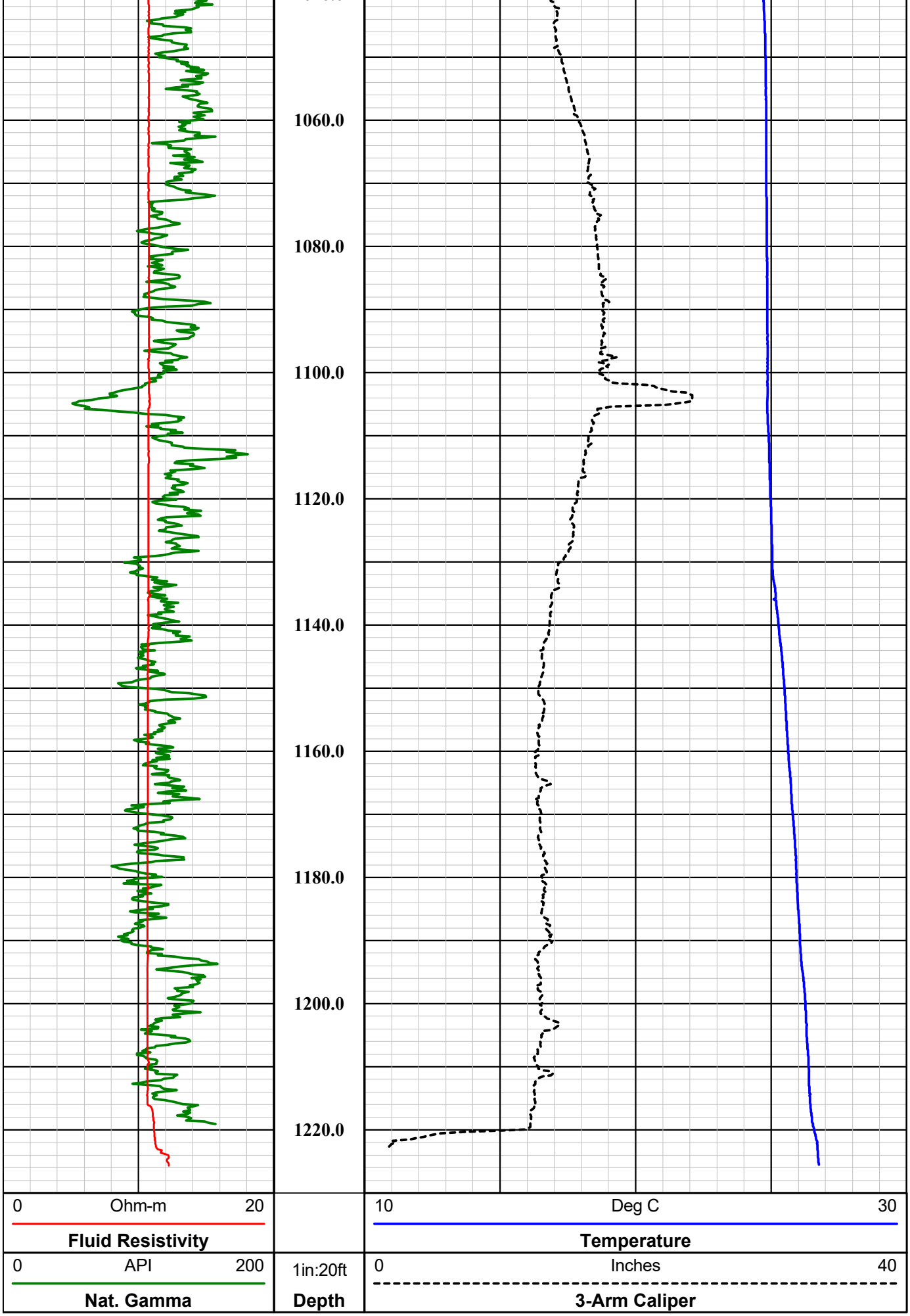
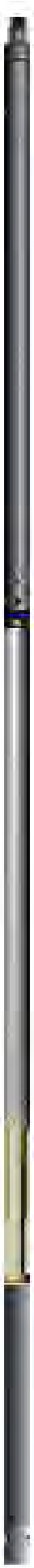


MSI Gamma-Caliper-Temperature-Fluid Resistivity

MSI Gamma-Caliper-Temperature-Fluid Resistivity

Probe Top = Depth Ref.



Single Conductor MSI Probe Top

Probe Length = 2.59 m or 8.5 ft
Probe Weight = 6.80 kg or 15.0 lbs

Natural Gamma and Caliper can only be collected logging up hole.

Fluid Temperature/Resistivity can only be collected logging down hole.

Temperature Rating: 70 Deg C (158 Deg F)
Presure Rating: 200 bar (2900 psi)

Natural Gamma Ray = 0.76 m (29.75 in)

NOTE: Lengths on a particular tool may vary from those listed on this document due to probe sizes and styles utilized

3-Arm Caliper = 1.44 m (56.75 in)

Distance from tool top: 2.20 m (86.5 in)

Available Arm Sizes: 3", 9", and 15"

TFR (Temperature/Fluid Resistivity) = 0.39 m (15.5 in)

1.375" or 34.9 mm Diameter

Southwest Exploration Services, LLC
borehole geophysics & video services

Company	FLORENCE COPPER
Well	O-04
Field	FLORENCE COPPER
County	PINAL
State	ARIZONA

Final GCT Summary

Southwest Exploration Services, LLC

borehole geophysics & video services

COMPANY	FLORENCE COPPER
WELL ID	O-04
FIELD	FLORENCE COPPER
COUNTY	PINAL
STATE	ARIZONA

TYPE OF LOGS: 60mm SONIC
MORE: GAMMA - CALIPER

LOCATION

SEC TWP RGE

OTHER SERVICES
E-LOG
TEMPERATURE
FLUID RESISTIVITY
DEVIATION

PERMANENT DATUM		ELEVATION	K.B.
LOG MEAS. FROM	GROUND LEVEL	ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	GROUND LEVEL		G.L.

DATE	1-15-18	TYPE FLUID IN HOLE	MUD
RUN No	1 & 3	MUD WEIGHT	N/A
TYPE LOG	SONIC - GAMMA - CALIPER	VISCOSITY	N/A
DEPTH-DRILLER	1220 FT.	LEVEL	FULL
DEPTH-LOGGER	1220 FT.	MAX. REC. TEMP.	26.76 DEG. C
BTM LOGGED INTERVAL	1220 FT.	IMAGE ORIENTED TO:	N/A
TOP LOGGED INTERVAL	SURFACE	SAMPLE INTERVAL	0.25 FT.
DRILLER / RIG#	HYDRO RESOURCES	LOGGING TRUCK	TRUCK #200
RECORDED BY / Logging Eng.	A. OLSON / D. BEAM	TOOL STRING/SN	MSI 60mm SONIC SN 5050
WITNESSED BY	CHAD - H&A	LOG TIME:ON SITE/OFF SITE	6:45 A.M.

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	? IN.	SURFACE	40 FT.	14 IN.	STEEL	SURFACE	40 FT.
2	12 1/4 IN.	40 FT.	TOTAL DEPTH				
3							

COMMENTS:

.

Tool Summary:

Date	1-15-18	**Date**	1-15-18	**Date**	1-15-18		
Run No.	1	**Run No.**	2	**Run No.**	3		
Tool Model	MSI COMBO TOOL	**Tool Model**	MSI E-LOG 40GRP	**Tool Model**	MSI 60MM SONIC		
Tool SN	5543	**Tool SN**	5019	**Tool SN**	5050		
From	SURFACE	**From**	SURFACE	**From**	SURFACE		
To	1220 FT.	**To**	1220 FT.	**To**	1220 FT.		
Recorded By	A. OLSON	**Recorded By**	A. OLSON	**Recorded By**	A. OLSON		
Truck No	200	**Truck No**	200	**Truck No**	200		
Operation Check	1-12-18	**Operation Check**	1-12-18	**Operation Check**	1-12-18		
Calibration Check	1-12-18	**Calibration Check**	1-12-18	**Calibration Check**	N/A		
Time Logged	8:20 A.M.	**Time Logged**	9:30 A.M.	**Time Logged**	10:20 A.M.		
Date	1-15-18	**Date**		**Date**		**Date**	
Run No.	4	**Run No.**	5	**Run No.**	6	**Run No.**	
Tool Model	MSI DEVIATION	**Tool Model**		**Tool Model**		**Tool Model**	
Tool SN	3082	**Tool SN**		**Tool SN**		**Tool SN**	
From	SURFACE	**From**		**From**		**From**	
To	1220 FT.	**To**		**To**		**To**	
Recorded By	A. OLSON	**Recorded By**		**Recorded By**		**Recorded By**	
Truck No	200	**Truck No**		**Truck No**		**Truck No**	
Operation Check	1-12-18	**Operation Check**		**Operation Check**		**Operation Check**	
Calibration Check	N/A	**Calibration Check**		**Calibration Check**		**Calibration Check**	
Time Logged	12:00 P.M.	**Time Logged**		**Time Logged**		**Time Logged**	

Additional Comments:

Caliper Arms Used: 15 IN. **Calibration Points:** 8 IN. & 23 IN.

E-Log Calibration Range: 1-1000 OHM-M **Calibration Points:** 1 & 1000 OHM-M

Disclaimer:

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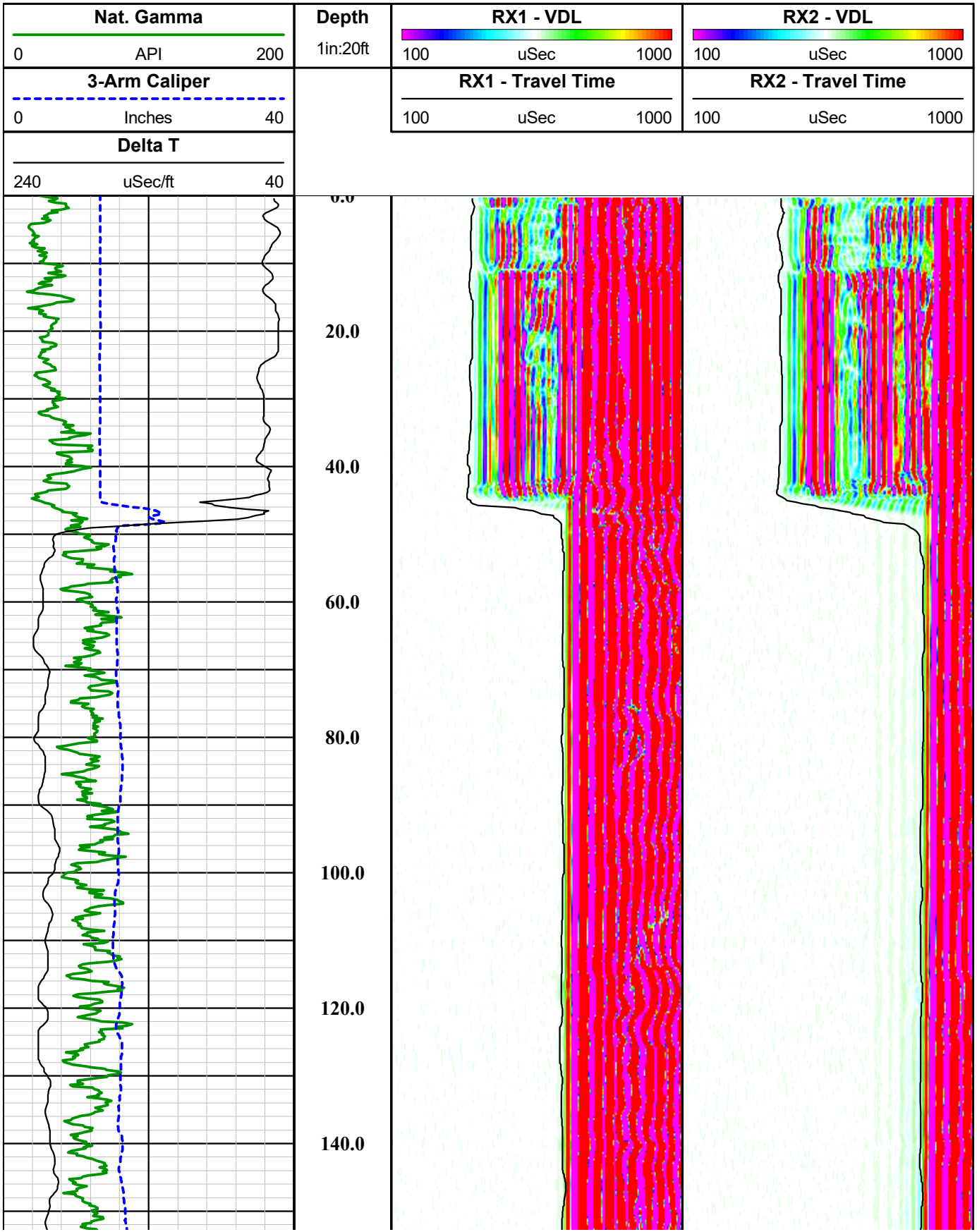

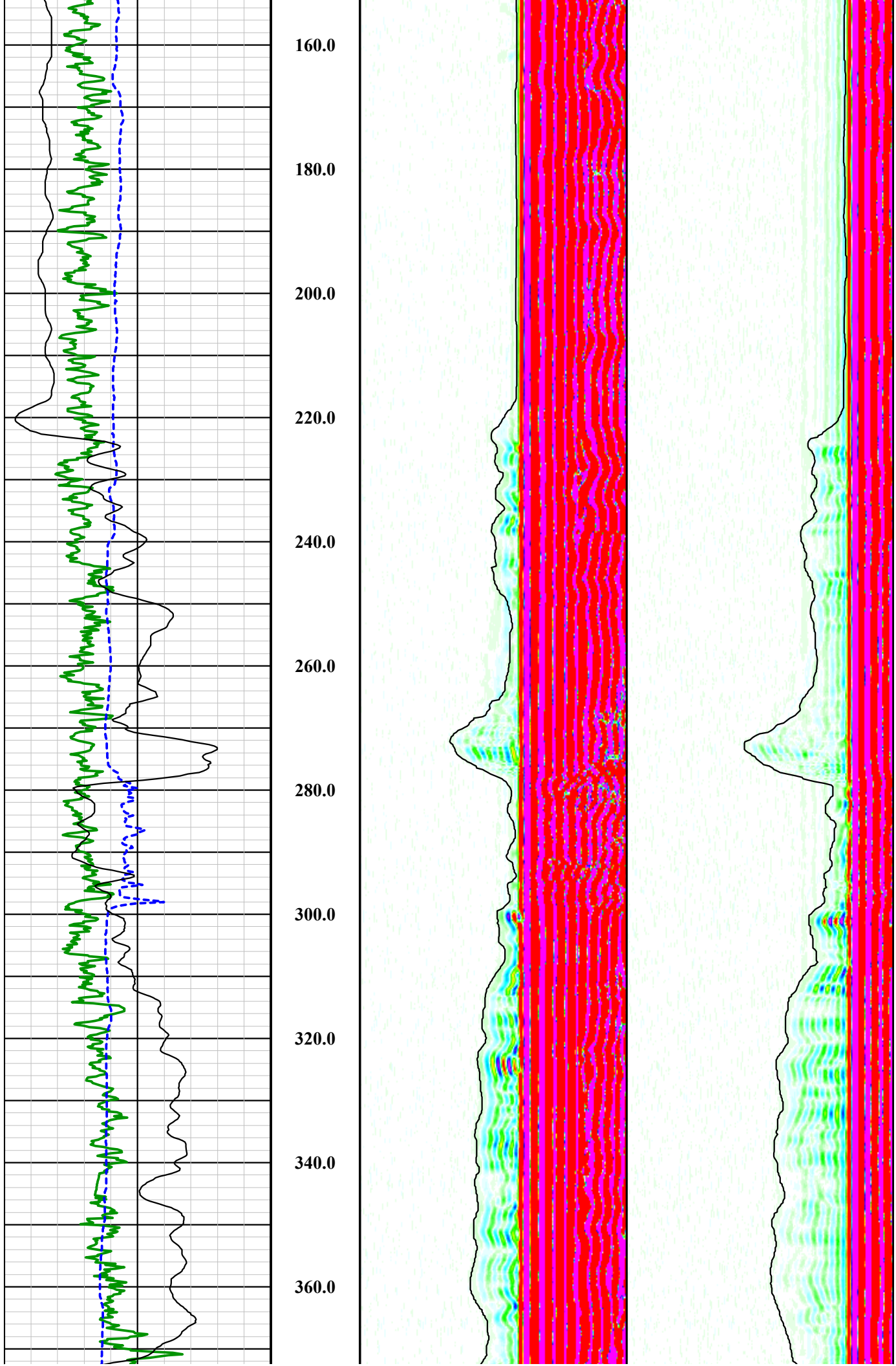
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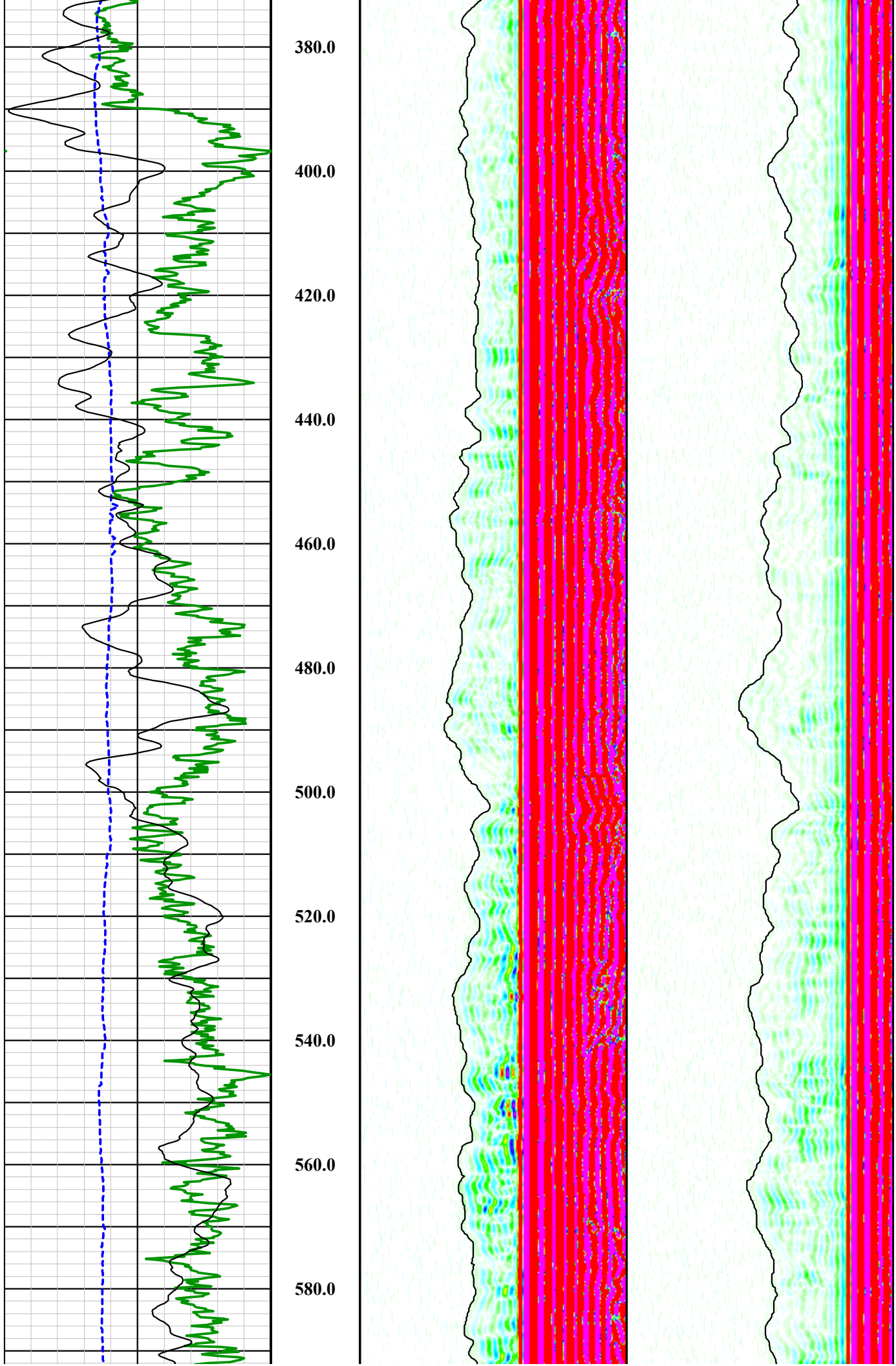
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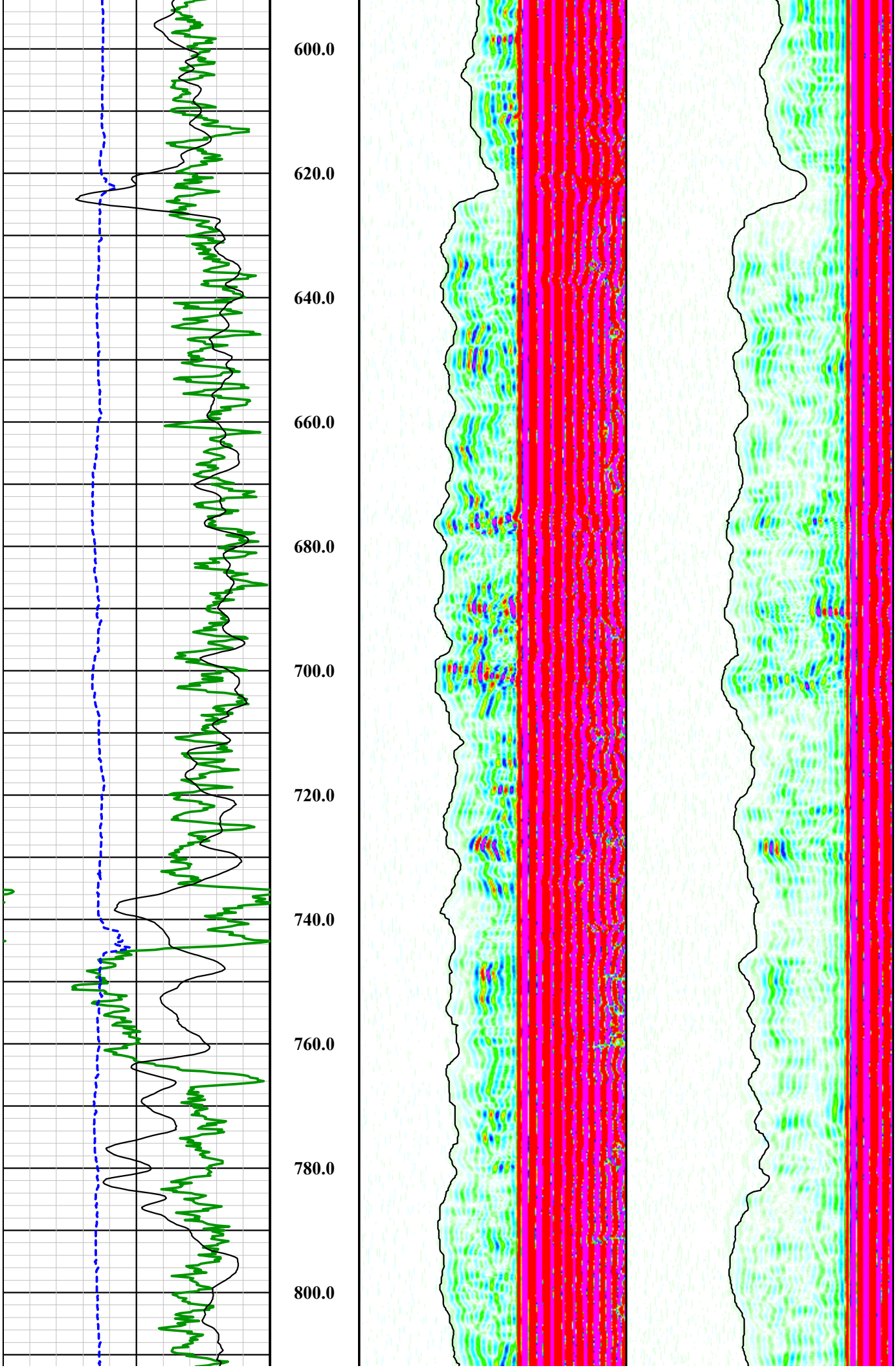
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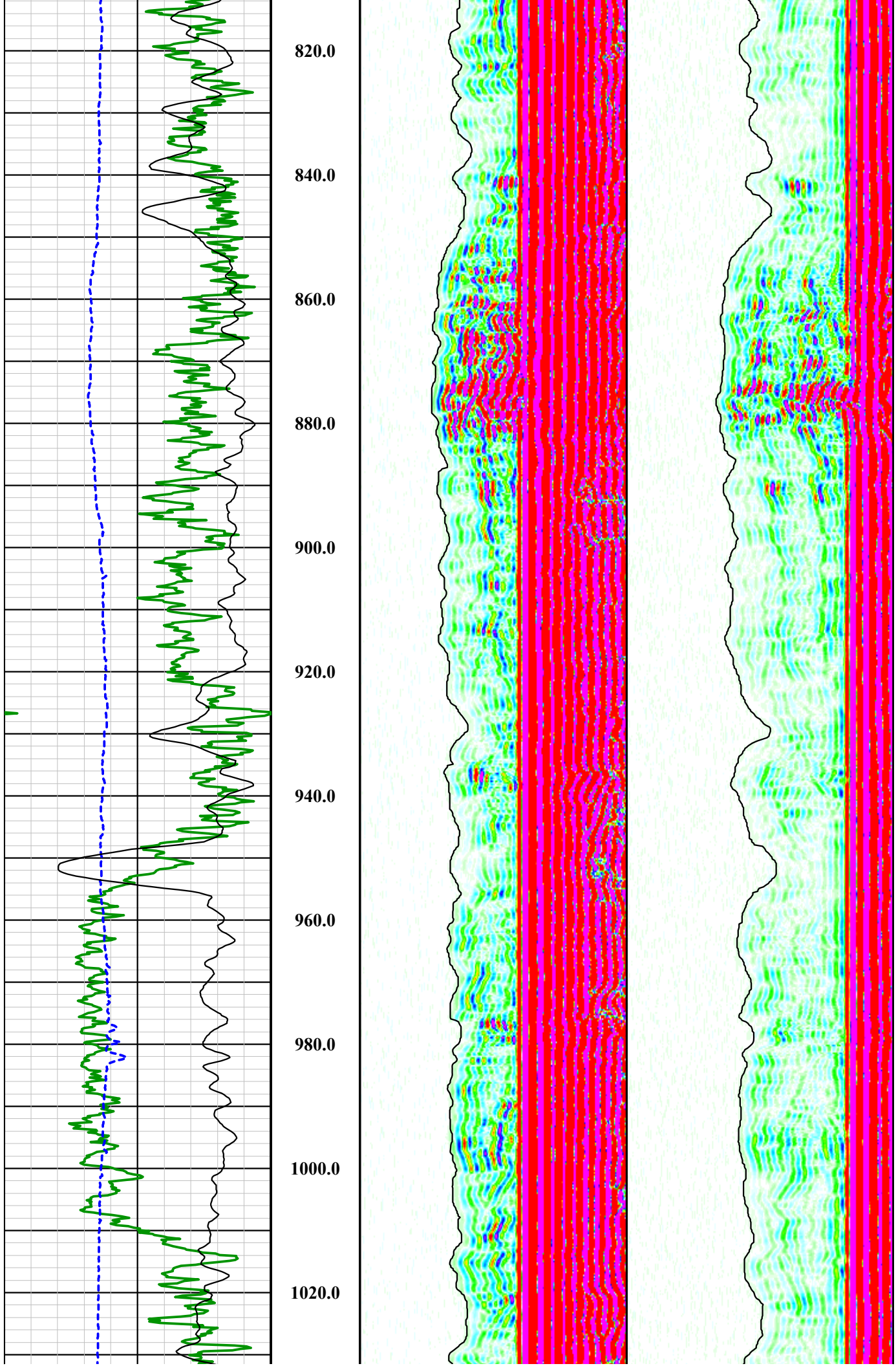
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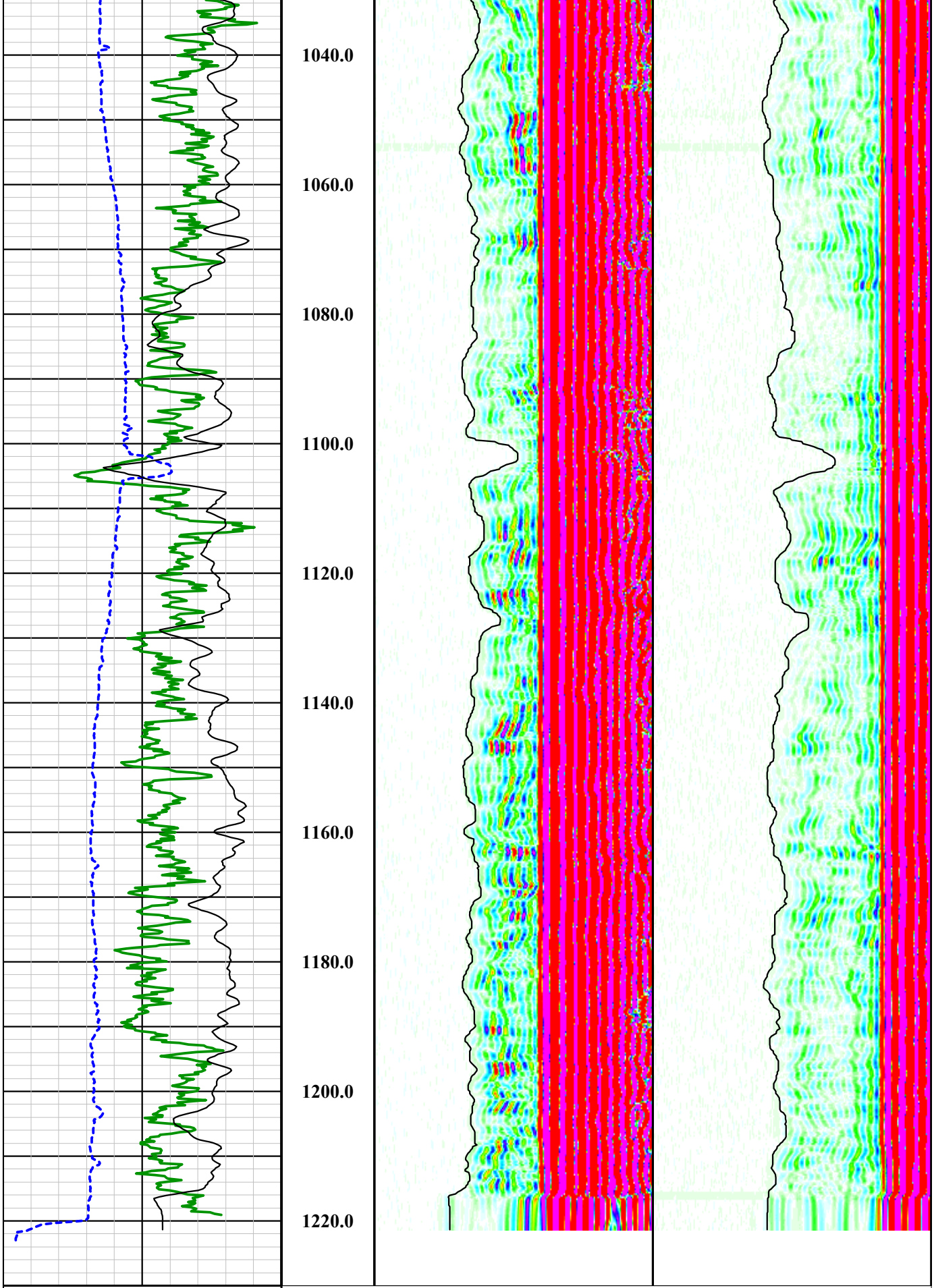


240 uSec/ft 40

Delta T

0 Inches 40

3-Arm Caliper

100 uSec 1000

RX1 - Travel Time

100 uSec 1000

RX2 - Travel Time

0 API 200

Nat. Gamma	Depth	RX1 - VDL	RX2 - VDL
0 API 200	1in:20ft	100 uSec 1000	100 uSec 1000

MSI 60 mm 2 RX Full Waveform Sonic Tool

Probe Top = Depth Ref.

Tool SN: 5001, 5050 & 6003

Four Conductor MSI Probe Top

Probe Length = 2.8 m or 9.19 ft
Probe Weight = ~26.5 kg or 58.4 lbs

Sensors: Ceramic Piezoelectric

Transmitter Frequency: 24 - 28 kHz resonant frequency

Rx - Rx Spacing: 0.3 m (12.0 in)

Typically centralized with external centralizers

Can only be collected in fluid

Temperature Rating: 80 Deg C (176 Deg F)
Presure Rating: 200 bar (2900 psi)

Rx-2 **Tx - Rx2 Spacing = 1.22 m (48.0 in)**

Rx-1 **Tx - Rx1 Spacing = .91 m (36.0 in)**

Acoustic Isolater

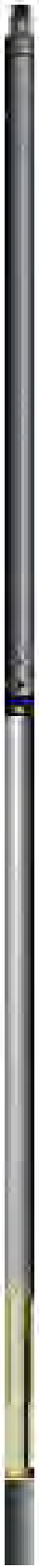
Tx = Acoustic Transmitter

0.660 m or 26.0 in. - End of tool to center of Tx

2.36 in or 60 mm Diameter

MSI Gamma-Caliper-Temperature-Fluid Resistivity

Probe Top = Depth Ref.



Single Conductor MSI Probe Top

Probe Length = 2.59 m or 8.5 ft
Probe Weight = 6.80 kg or 15.0 lbs

Natural Gamma and Caliper can only be collected logging up hole.

Fluid Temperature/Resistivity can only be collected logging down hole.

Temperature Rating: 70 Deg C (158 Deg F)
Presure Rating: 200 bar (2900 psi)

Natural Gamma Ray = 0.76 m (29.75 in)

NOTE: Lengths on a particular tool may vary from those listed on this document due to probe sizes and styles utilized

3-Arm Caliper = 1.44 m (56.75 in)

Distance from tool top: 2.20 m (86.5 in)

Available Arm Sizes: 3", 9", and 15"

TFR (Temperature/Fluid Resistivity) = 0.39 m (15.5 in)

1.375" or 34.9 mm Diameter

Southwest Exploration Services, LLC
borehole geophysics & video services

Company	FLORENCE COPPER
Well	O-04
Field	FLORENCE COPPER
County	PINAL
State	ARIZONA

Final Sonic Summary

Southwest Exploration Services, LLC

borehole geophysics & video services

COMPANY	FLORENCE COPPER
WELL ID	O-04
FIELD	FLORENCE COPPER
COUNTY	PINAL
STATE	ARIZONA

TYPE OF LOGS: 3-ARM CALIPER
MORE: W / VOLUME CALC.

LOCATION

SEC TWP RGE

OTHER SERVICES
E-LOG
SONIC
DEVIATION
NAT. GAMMA
TEMPERATURE
FLUID RESISTIVITY

PERMANENT DATUM	ELEVATION	K.B.
LOG MEAS. FROM	GROUND LEVEL ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	GROUND LEVEL	G.L.

DATE	1-15-18	TYPE FLUID IN HOLE	MUD
RUN No	1	MUD WEIGHT	N/A
TYPE LOG	VOLUME CALCULATION	VISCOSITY	N/A
DEPTH-DRILLER	1220 FT.	LEVEL	FULL
DEPTH-LOGGER	1220 FT.	MAX. REC. TEMP.	26.76 DEG. C
BTM LOGGED INTERVAL	1220 FT.	IMAGE ORIENTED TO:	N/A
TOP LOGGED INTERVAL	SURFACE	SAMPLE INTERVAL	0.2 FT.
DRILLER / RIG#	HYDRO RESOURCES	LOGGING TRUCK	TRUCK #200
RECORDED BY / Logging Eng.	A. OLSON / D. BEAM	TOOL STRING/SN	MSI COMBO TOOL SN 5543
WITNESSED BY	CHAD - H&A	LOG TIME:ON SITE/OFF SITE	6:45 A.M.

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	? IN.	SURFACE	40 FT.	14 IN.	STEEL	SURFACE	40 FT.
2	12 1/4 IN.	40 FT.	TOTAL DEPTH				
3							

COMMENTS:

.

Tool Summary:

Date	1-15-18	**Date**	1-15-18	**Date**	1-15-18	**Date**		**Date**	
Run No.	1	**Run No.**	2	**Run No.**	3	**Run No.**	4	**Run No.**	5
Tool Model	MSI COMBO TOOL	**Tool Model**	MSI E-LOG 40GRP	**Tool Model**	MSI 60MM SONIC	**Tool Model**	MSI DEVIATION	**Tool Model**	
Tool SN	5543	**Tool SN**	5019	**Tool SN**	5050	**Tool SN**	3082	**Tool SN**	
From	SURFACE	**From**	SURFACE	**From**	SURFACE	**From**	SURFACE	**From**	
To	1220 FT.	**To**	1220 FT.	**To**	1220 FT.	**To**	1220 FT.	**To**	
Recorded By	A. OLSON	**Recorded By**	A. OLSON	**Recorded By**	A. OLSON	**Recorded By**	A. OLSON	**Recorded By**	
Truck No	200	**Truck No**	200	**Truck No**	200	**Truck No**	200	**Truck No**	
Operation Check	1-12-18	**Operation Check**	1-12-18	**Operation Check**	1-12-18	**Operation Check**	1-12-18	**Operation Check**	
Calibration Check	1-12-18	**Calibration Check**	1-12-18	**Calibration Check**	N/A	**Calibration Check**	N/A	**Calibration Check**	
Time Logged	8:20 A.M.	**Time Logged**	9:30 A.M.	**Time Logged**	10:20 A.M.	**Time Logged**	12:00 P.M.	**Time Logged**	

Additional Comments:

Caliper Arms Used: 15 IN. **Calibration Points:** 8 IN. & 23 IN.

E-Log Calibration Range: 1-1000 OHM-M **Calibration Points:** 1 & 1000 OHM-M

Disclaimer:

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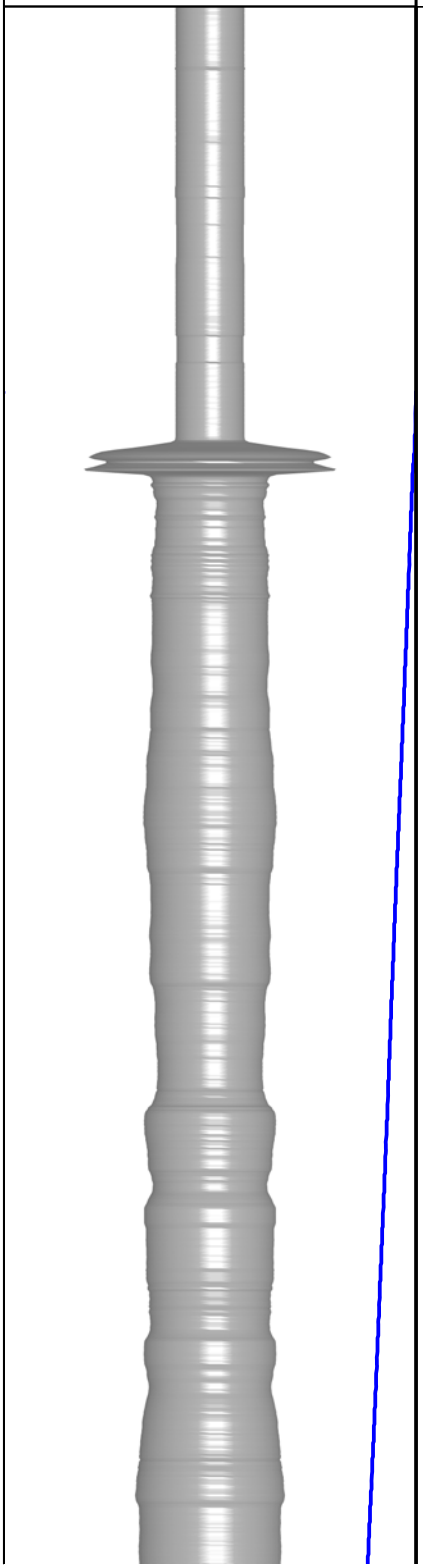
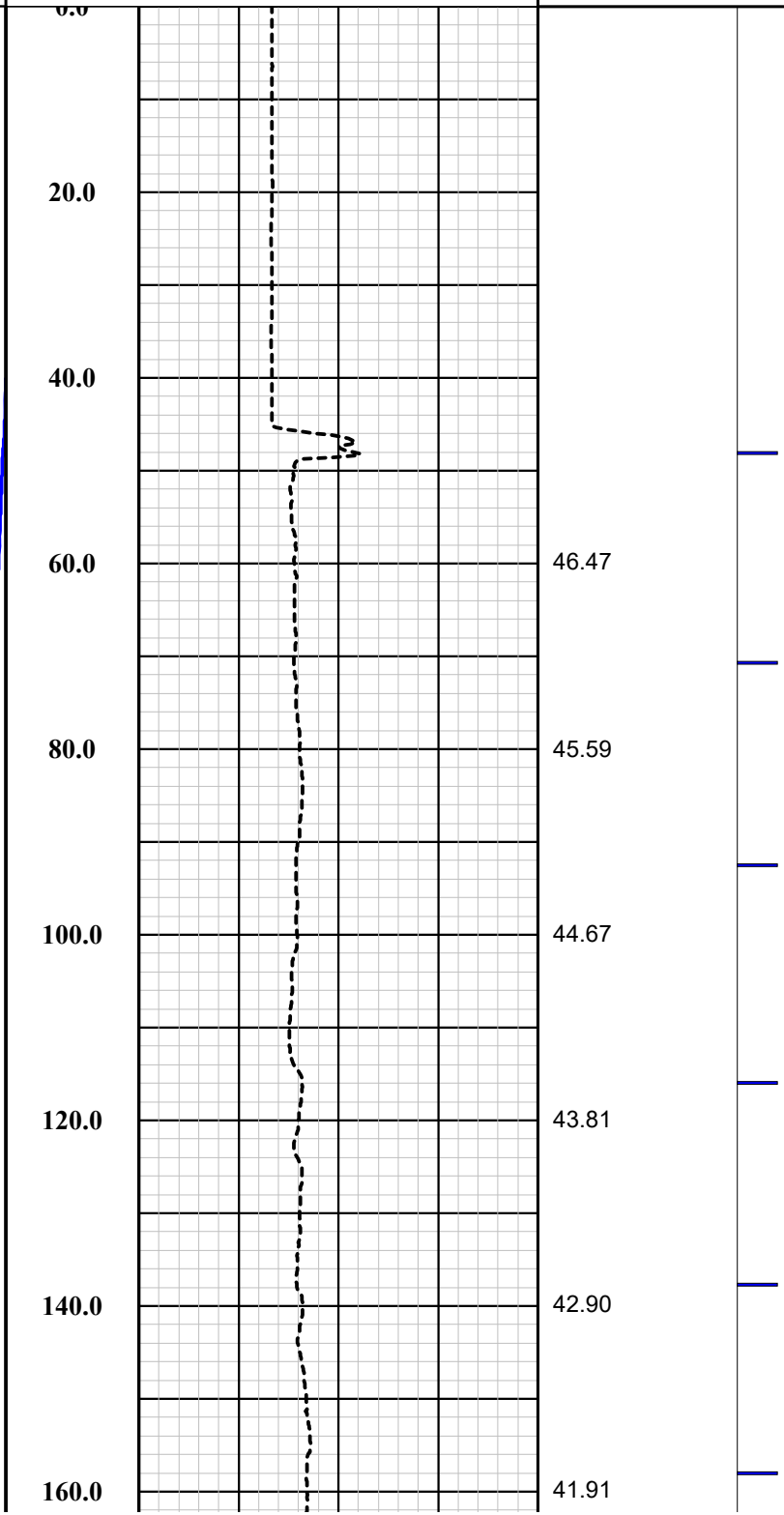
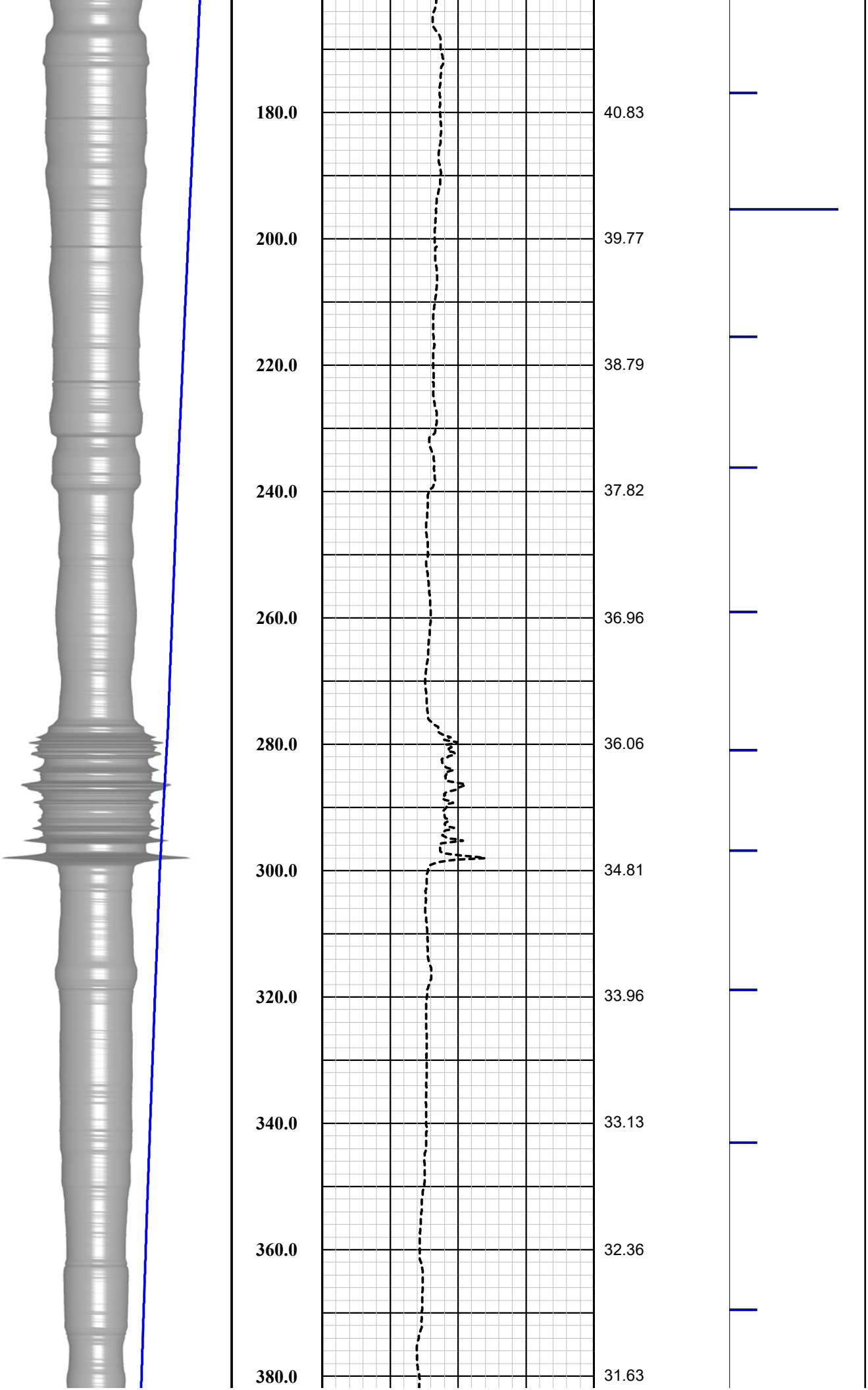
Total Volume	Depth	3-Arm Caliper	Cumulated Volume (cu.yd)
0 cu.yd 47.34	1in:20ft	0 Inches 40	
3-D View			Based on 5.5" OD Casing
-0°			



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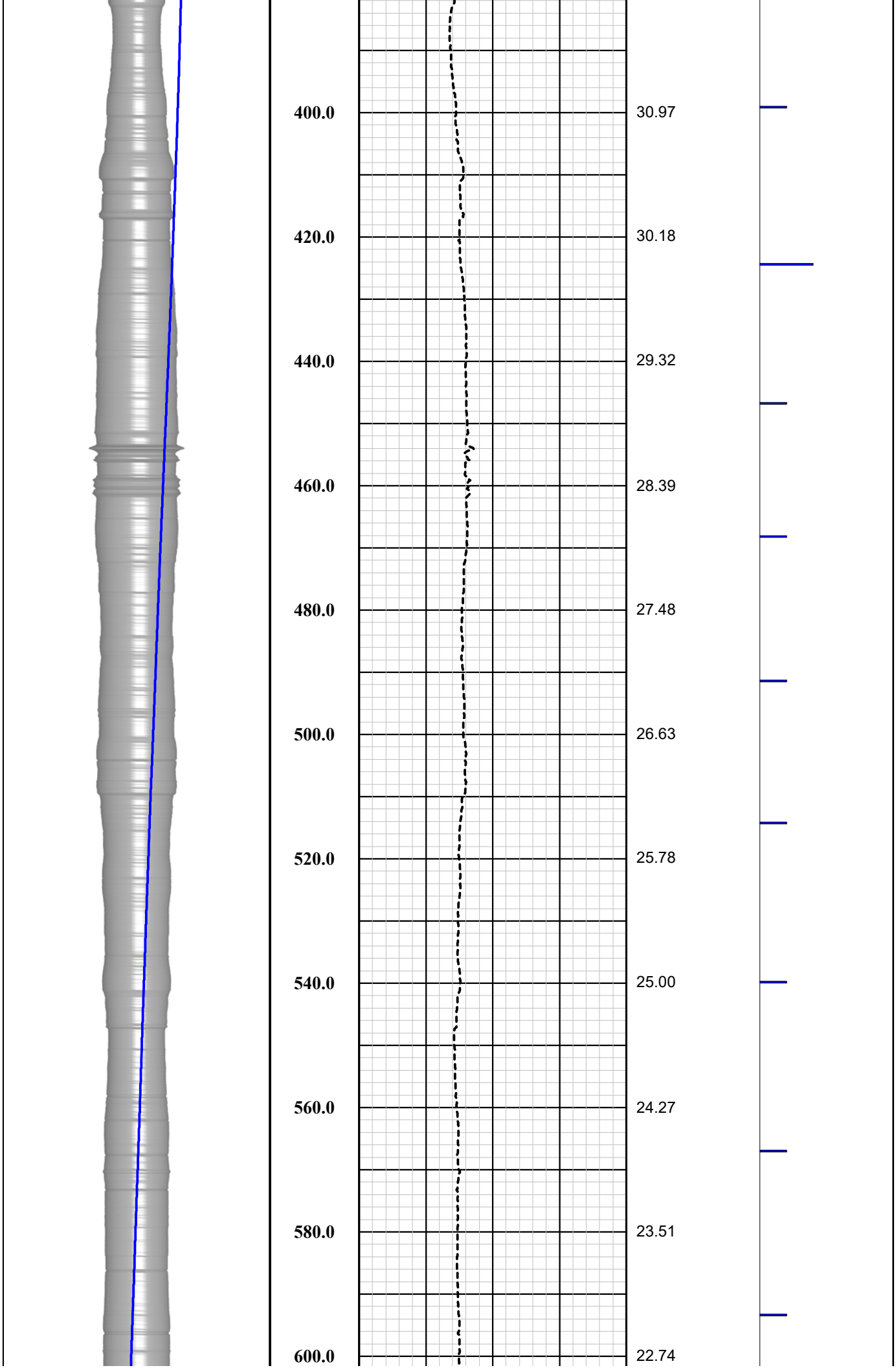
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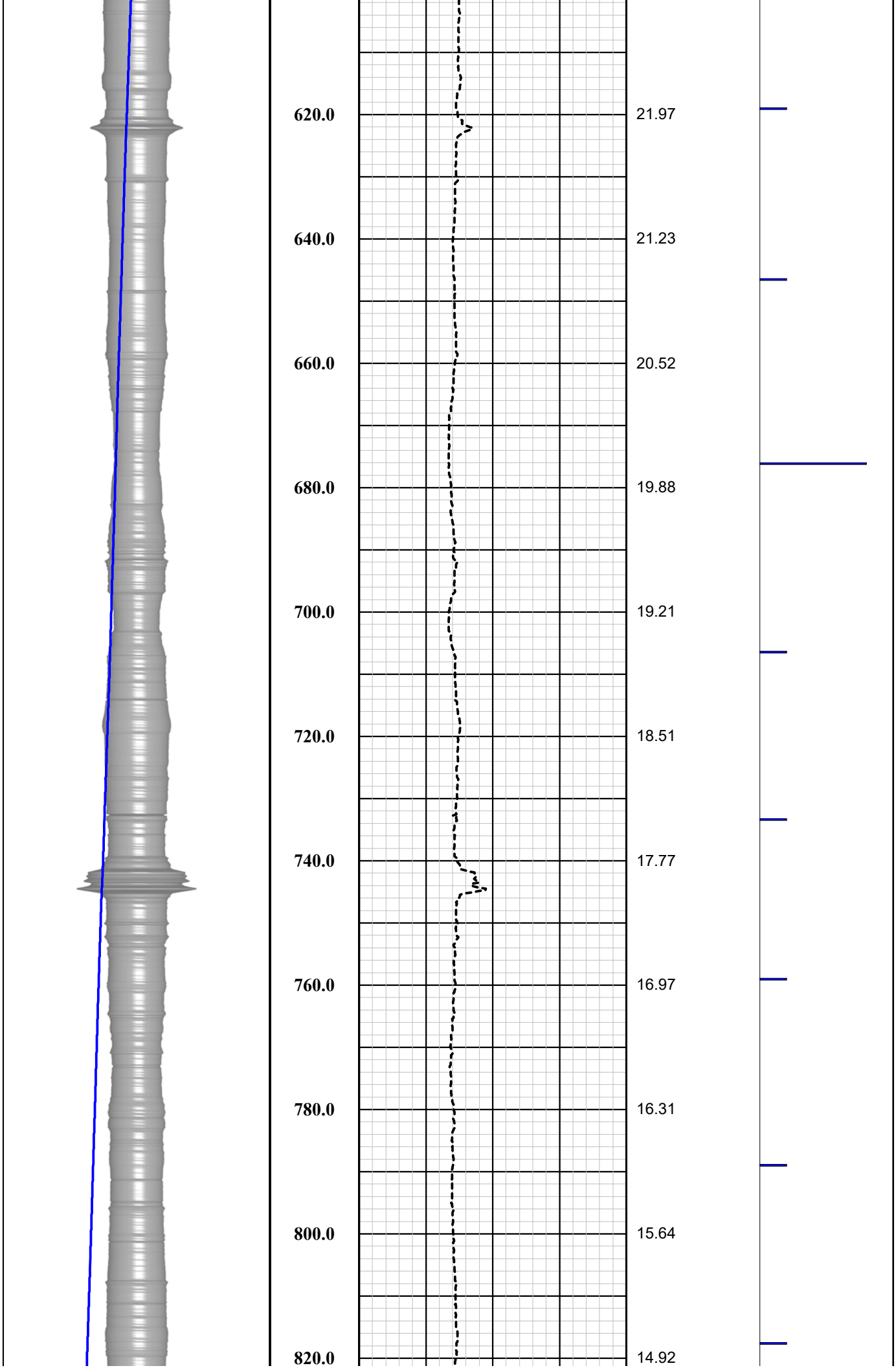
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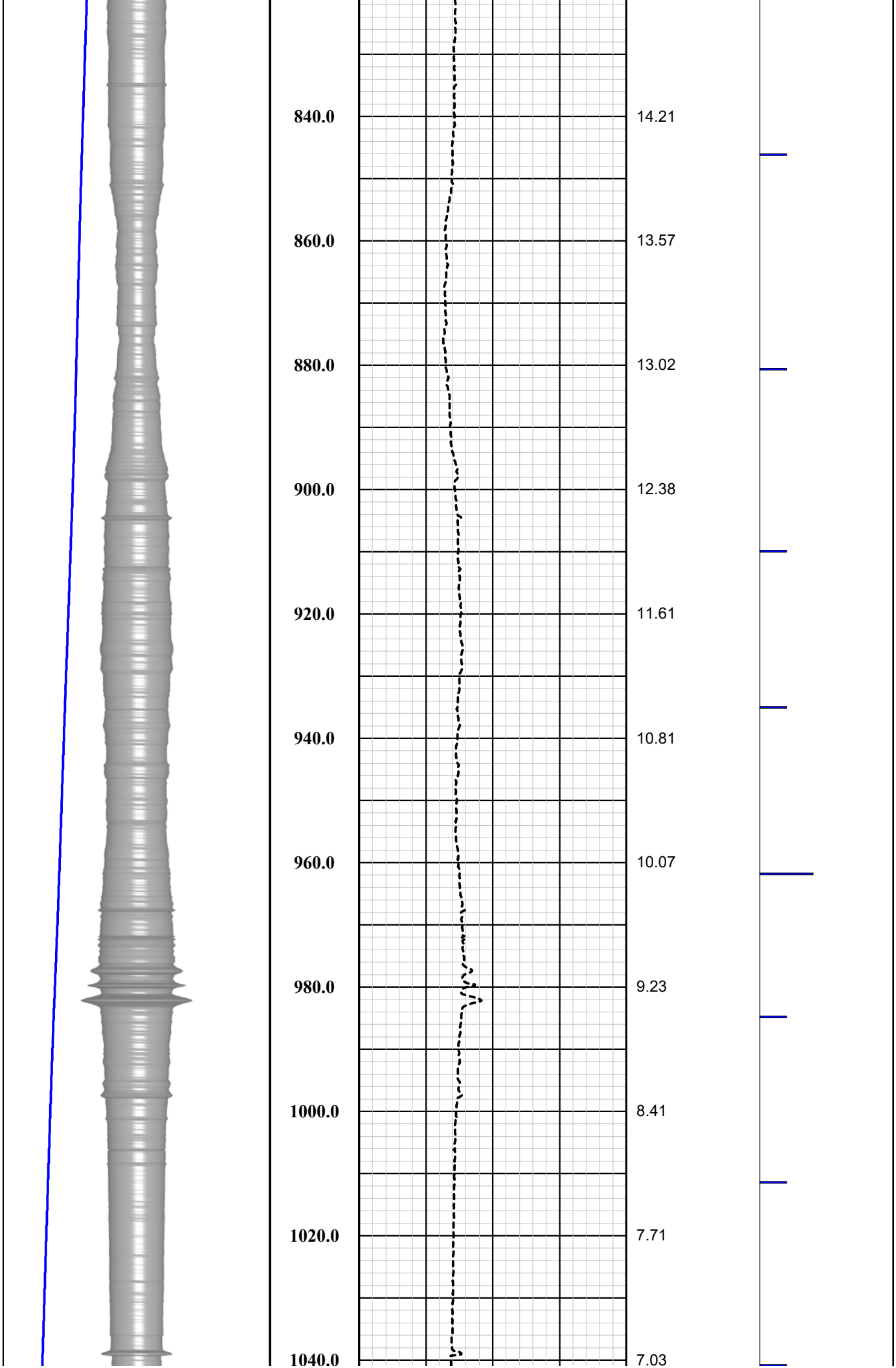
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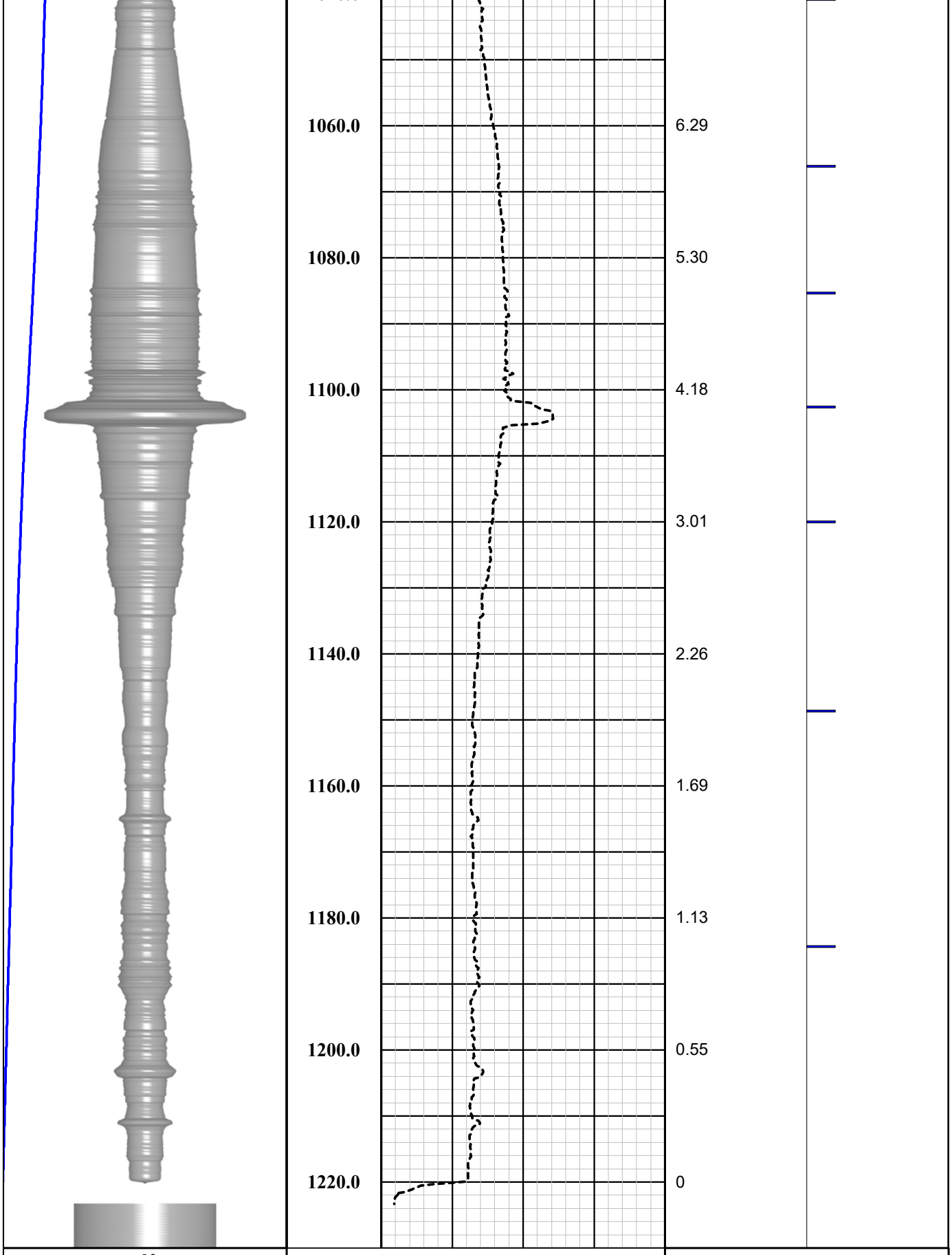


-0°

3-D View

0 cu.yd 47.34

Total Volume

1in:20ft

Depth

0 Inches 40

3-Arm Caliper

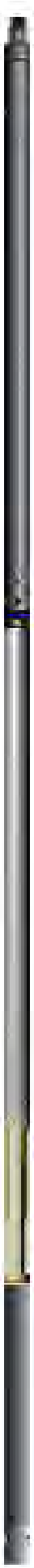
Based on 5.5" OD Casing

Cumulated Volume (cu.yd)

MSI Gamma-Caliper-Temperature-Fluid Resistivity

MSI Gamma-Caliper-Temperature-Fluid Resistivity

Probe Top = Depth Ref.



Single Conductor MSI Probe Top

Probe Length = 2.59 m or 8.5 ft
Probe Weight = 6.80 kg or 15.0 lbs

Natural Gamma and Caliper can only be collected logging up hole.

Fluid Temperature/Resistivity can only be collected logging down hole.

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Presure Rating: 200 bar (2900 psi)

Natural Gamma Ray = 0.76 m (29.75 in)

NOTE: Lengths on a particular tool may vary from those listed on this document due to probe sizes and styles utilized

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Distance from tool top: 2.20 m (86.5 in)

Available Arm Sizes: 3", 9", and 15"

TFR (Temperature/Fluid Resistivity) = 0.39 m (15.5 in)

1.375" or 34.9 mm Diameter

Southwest Exploration Services, LLC
borehole geophysics & video services

Company	FLORENCE COPPER
Well	O-04
Field	FLORENCE COPPER
County	PINAL
State	ARIZONA

Final Caliper w / Volume Calculation Summary

Drift Report

Wellbore DRIFT Interpretation

PREPARED ESPECIALLY FOR

FLORENCE COPPER

O-04

Monday - January 15, 2018

Southwest Exploration Services, LLC
(480) 926-4558

WELLBORE DRIFT INTERPRETATION

Southwest Exploration Services, LLC
(480) 926-4558

Company: FLORENCE COPPER **Well Owner:**

County: PINAL **State:** Arizona **Country:** USA

Well Number: O-04 **Survey Date:** Monday - January 15, 2018 **Magnetic Declination:** Declination Correction Not Used

Field: FLORENCE COPPER **Drift Calculation Methodology:** Balanced Tangential Method

Location:

Remarks:

Witness: CHAD- H&A **Vehicle No.:** 200 **Invoice No.:** **Operator:** A. OLSON **Well Depth:** 1220 Feet **Casing size:** 12.25 Inches

Tool: Compass - 3082 **Lat.:** **Long.:** **Sec.:** **Twp.:** **Rge.:**

MEASURED DATA			DATA COMPUTATIONS						
DEPTHS, feet	INCLINATIONS, degrees	AZIMUTHS, degrees	TVD, feet	T. LATITUDE, feet	T. LONGITUDE, feet	DOGLEG SEV., degrees per 20 Feet	DOGLEG SEV., degrees per 100 feet	DRIFT DIST., feet	DRIFT BGR., degrees
0	0.28	059.35	0.00						
20	0.37	353.37	19.99	0.089	0.035	1.00	3.69	0.10' (1.20")	021.20
40	0.35	050.68	39.98	0.192	0.075	0.41	3.25	0.21' (2.52")	021.30
60	0.07	272.19	59.97	0.231	0.110	0.96	6.33	0.26' (3.12")	025.50
80	0.03	107.54	79.96	0.230	0.103	0.84	6.71	0.25' (3.00")	024.10
100	0.14	310.73	99.96	0.244	0.089	0.42	6.63	0.26' (3.12")	020.10
120	0.30	002.30	119.95	0.312	0.073	0.13	2.94	0.32' (3.84")	013.10
140	0.06	114.99	139.94	0.360	0.085	0.43	5.63	0.37' (4.44")	013.20
160	0.21	299.67	159.93	0.374	0.063	0.83	6.76	0.38' (4.56")	009.50
180	0.28	311.51	179.92	0.425	-0.005	0.95	0.70	0.42' (5.04")	359.30
200	0.25	333.27	199.91	0.496	-0.061	0.37	1.28	0.50' (6.00")	353.00
220	0.19	007.56	219.90	0.568	-0.076	1.00	2.00	0.57' (6.84")	352.40
240	0.32	346.35	239.89	0.655	-0.085	1.00	1.25	0.66' (7.92")	352.60
260	0.09	335.26	259.88	0.724	-0.105	0.34	0.65	0.73' (8.76")	351.80
280	0.14	336.94	279.87	0.761	-0.121	0.93	0.10	0.77' (9.24")	351.00
300	0.35	340.55	299.86	0.841	-0.151	0.78	0.21	0.85' (10.20")	349.80
320	0.31	297.97	319.85	0.924	-0.219	0.53	2.46	0.95' (11.40")	346.70
340	0.11	335.08	339.84	0.967	-0.275	0.00	2.15	1.01' (12.12")	344.10

True Vertical Depth: 1219.41' **Final Drift Distance:** 3.48' (41.76") **Final Drift Bearing:** 62.60°

Note: Magnetic Declination is not used because it is not a factor in the calculation of well drift or alignment. Magnetic Declination is only important if attempting to hit a target or miss another well and then it is included in the calculations.

WELLBORE DRIFT INTERPRETATION

Southwest Exploration Services, LLC

O-04

(480) 926-4558

MEASURED DATA			DATA COMPUTATIONS						
DEPTHS, feet	INCLINATIONS, degrees	AZIMUTHS, degrees	TVD, feet	T. LATITUDE, feet	T. LONGITUDE, feet	DOGLEG SEV., degrees per 20 Feet	DOGLEG SEV., degrees per 100 feet	DRIFT DIST., feet	DRIFT BRG., degrees
360	0.13°	306.83°	359.83	0.998	-0.301	0.56	1.65	1.04' (12.48")	343.20
380	0.11°	321.09°	379.82	1.027	-0.331	0.73	0.84	1.08' (12.96")	342.10
400	0.21°	324.84°	399.81	1.072	-0.364	0.88	0.22	1.13' (13.56")	341.20
420	0.06°	280.78°	419.80	1.104	-0.395	0.20	2.54	1.17' (14.04")	340.30
440	0.12°	339.25°	439.79	1.126	-0.413	0.97	3.31	1.20' (14.40")	339.90
460	0.05°	293.08°	459.78	1.149	-0.428	0.96	2.65	1.23' (14.76")	339.60
480	0.14°	003.81°	479.77	1.177	-0.434	0.12	3.92	1.25' (15.00")	339.70
500	0.11°	348.38°	499.76	1.220	-0.436	0.81	0.91	1.30' (15.60")	340.30
520	0.29°	009.48°	519.75	1.289	-0.432	0.59	1.24	1.36' (16.32")	341.50
540	0.22°	345.01°	539.74	1.376	-0.434	0.73	1.43	1.44' (17.28")	342.50
560	0.10°	017.20°	559.73	1.430	-0.439	0.28	1.88	1.50' (18.00")	342.90
580	0.11°	203.98°	579.72	1.429	-0.442	0.77	6.76	1.50' (18.00")	342.80
600	0.05°	220.00°	599.71	1.405	-0.455	0.49	0.94	1.48' (17.76")	342.00
620	0.10°	093.04°	619.70	1.397	-0.443	0.69	6.06	1.47' (17.64")	342.40
640	0.08°	276.87°	639.69	1.398	-0.439	0.13	6.77	1.47' (17.64")	342.50
660	0.18°	051.79°	659.68	1.419	-0.428	0.83	6.25	1.48' (17.76")	343.20
680	0.04°	075.14°	679.67	1.440	-0.397	0.80	1.37	1.49' (17.88")	344.60
700	0.30°	094.37°	699.66	1.438	-0.338	0.25	1.13	1.48' (17.76")	346.80
720	0.19°	093.46°	719.65	1.432	-0.253	0.54	0.05	1.45' (17.40")	350.00
740	0.25°	040.80°	739.64	1.463	-0.191	0.24	3.00	1.48' (17.76")	352.50
760	0.11°	156.50°	759.63	1.478	-0.155	0.94	5.73	1.49' (17.88")	354.00
780	0.23°	131.84°	779.62	1.434	-0.117	0.65	1.45	1.44' (17.28")	355.30
800	0.22°	031.16°	799.61	1.440	-0.067	0.97	5.21	1.44' (17.28")	357.30
820	0.00°	033.42°	819.60	1.473	-0.047	0.06	0.13	1.47' (17.64")	358.20
840	0.37°	095.75°	839.59	1.467	0.017	0.29	3.50	1.47' (17.64")	000.70
860	0.34°	122.15°	859.58	1.429	0.131	0.57	1.55	1.43' (17.16")	005.30
880	0.78°	145.64°	879.57	1.285	0.258	0.47	1.38	1.31' (15.72")	011.40
900	0.15°	043.39°	899.56	1.192	0.353	0.42	5.27	1.24' (14.88")	016.50
920	0.53°	093.84°	919.55	1.205	0.463	0.69	2.88	1.29' (15.48")	021.00
940	0.57°	056.29°	939.54	1.254	0.638	0.04	2.18	1.41' (16.92")	027.00
960	0.42°	066.46°	959.53	1.338	0.788	0.30	0.60	1.55' (18.60")	030.50
980	0.37°	089.04°	979.52	1.368	0.920	0.98	1.33	1.65' (19.80")	033.90
1,000	0.22°	358.94°	999.52	1.407	0.984	0.95	4.79	1.72' (20.64")	035.00

True Vertical Depth: 1219.41' **Final Drift Distance: 3.48' (41.76")** **Final Drift Bearing: 62.60°**

WELLBORE DRIFT INTERPRETATION

Southwest Exploration Services, LLC
(480) 926-4558

O-04

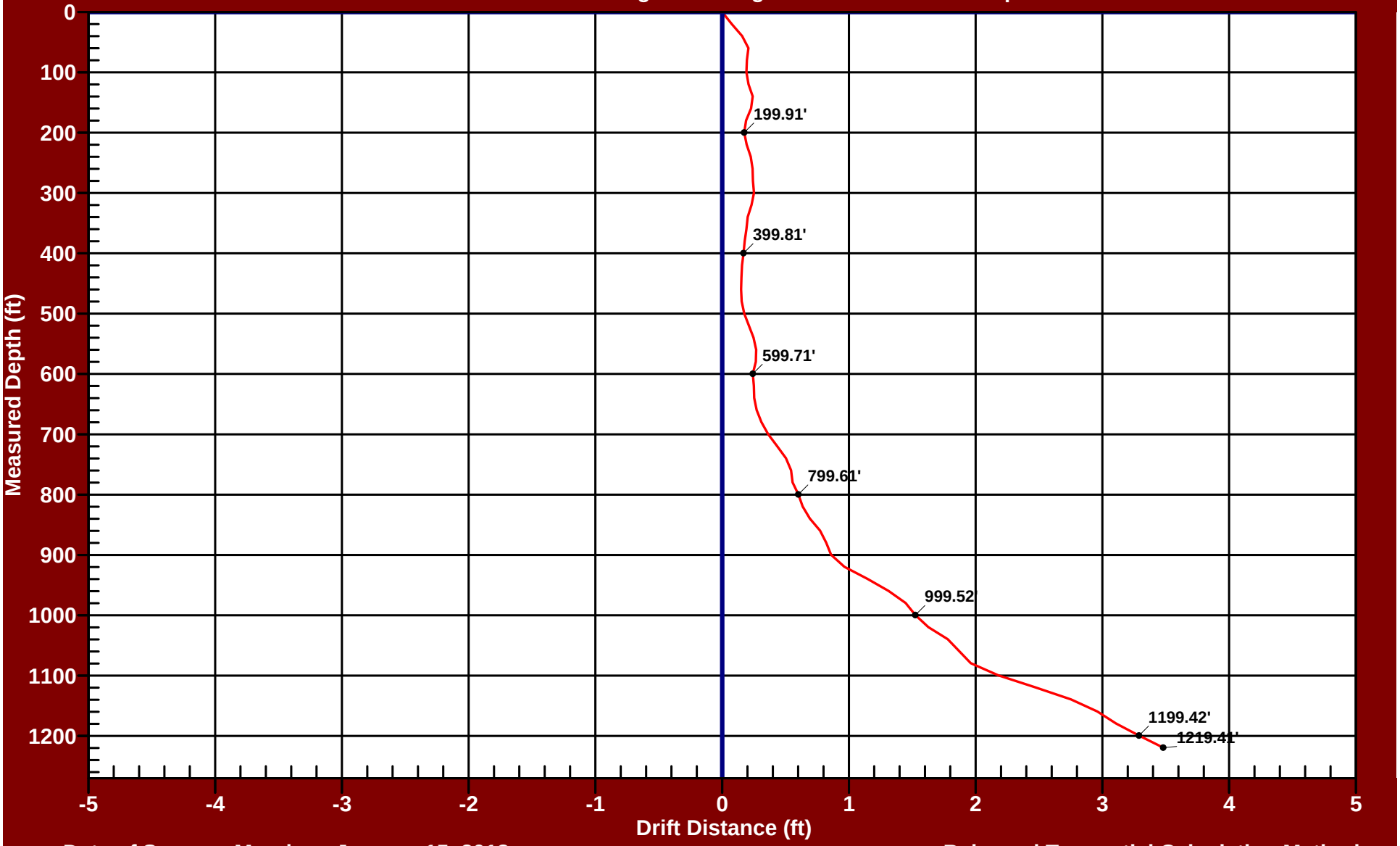
MEASURED DATA			DATA COMPUTATIONS						
DEPTHS, feet	INCLINATIONS, degrees	AZIMUTHS, degrees	TVD, feet	T. LATITUDE, feet	T. LONGITUDE, feet	DOGLEG SEV., degrees per 20 Feet	DOGLEG SEV., degrees per 100 feet	DRIFT DIST., feet	DRIFT BRG., degrees
1,020	0.53°	087.23°	1,019.51	1.450	1.076	0.96	4.71	1.81' (21.72")	036.60
1,040	0.42°	066.69°	1,039.50	1.483	1.236	0.46	1.21	1.93' (23.16")	039.80
1,060	0.23°	120.64°	1,059.49	1.492	1.338	0.25	3.07	2.00' (24.00")	041.90
1,080	0.59°	114.26°	1,079.48	1.429	1.466	0.92	0.38	2.05' (24.60")	045.70
1,100	0.87°	073.92°	1,099.47	1.429	1.706	0.09	2.33	2.23' (26.76")	050.10
1,120	0.91°	087.20°	1,119.46	1.479	2.011	0.16	0.78	2.50' (30.00")	053.70
1,140	0.83°	063.57°	1,139.45	1.551	2.299	0.98	1.39	2.77' (33.24")	056.00
1,160	0.52°	111.33°	1,159.44	1.582	2.513	0.54	2.74	2.97' (35.64")	057.80
1,180	0.57°	094.76°	1,179.43	1.541	2.697	0.80	0.98	3.11' (37.32")	060.30
1,200	0.58°	054.88°	1,199.42	1.591	2.879	0.66	2.31	3.29' (39.48")	061.10
1,220	0.79°	110.54°	1,219.41	1.601	3.091	0.94	3.16	3.48' (41.76")	062.60

True Vertical Depth: 1219.41' **Final Drift Distance: 3.48' (41.76")** **Final Drift Bearing: 62.60°**

PLANE OF DRIFT VIEW - O-04

FLORENCE COPPER

Drift Distance = 3.48 Feet Drift Bearing = 62.6 Degrees True Vertical Depth = 1219.41 Feet



Date of Survey: Monday - January 15, 2018

Balanced Tangential Calculation Method

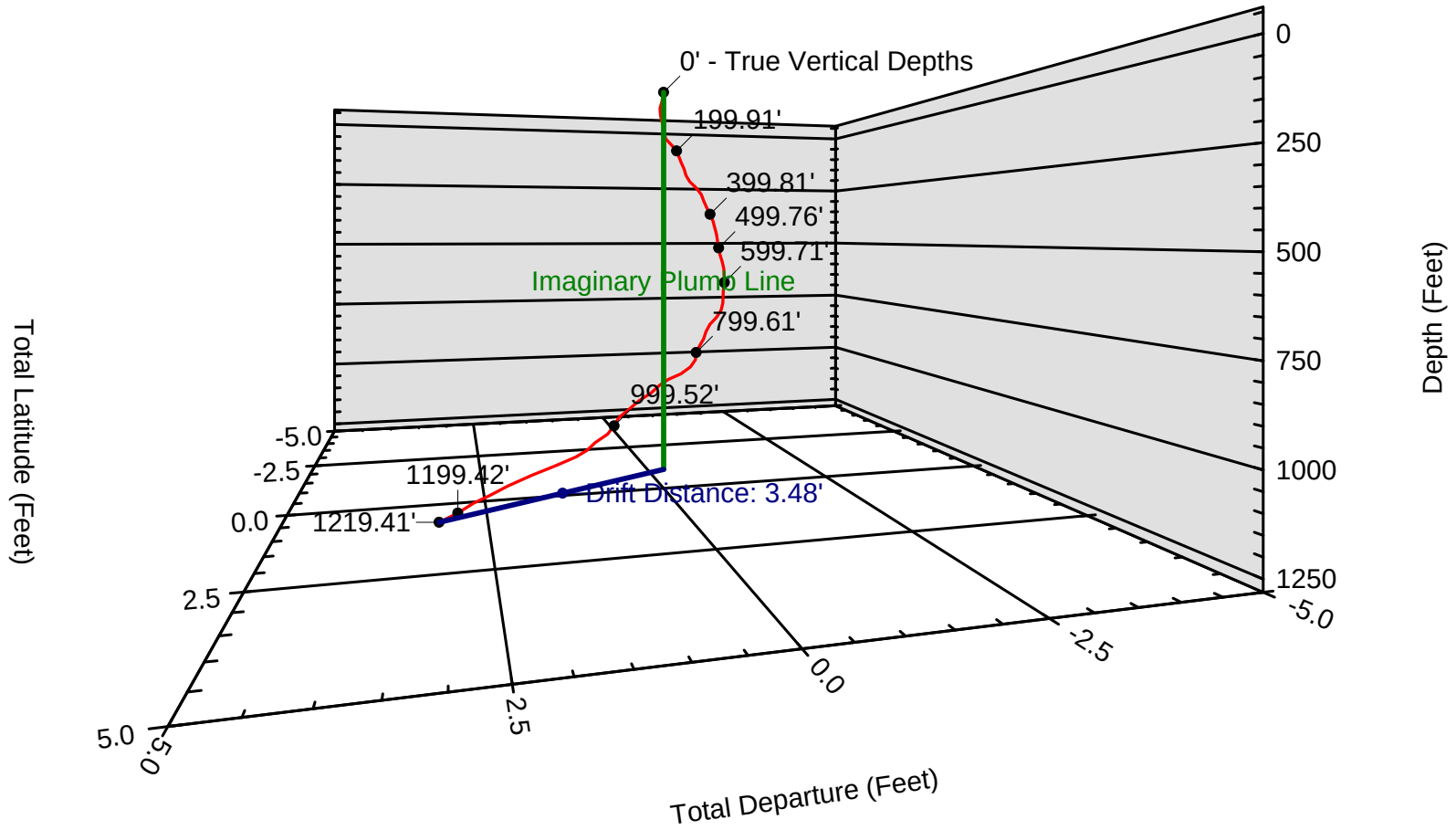
Southwest Exploration Services, LLC (480) 926-4558

3D PROJECTION VIEW - O-04

FLORENCE COPPER

Drift Distance = 3.48 Feet Drift Bearing = 62.6 Degrees True Vertical Depth = 1219.41 Feet

346.0



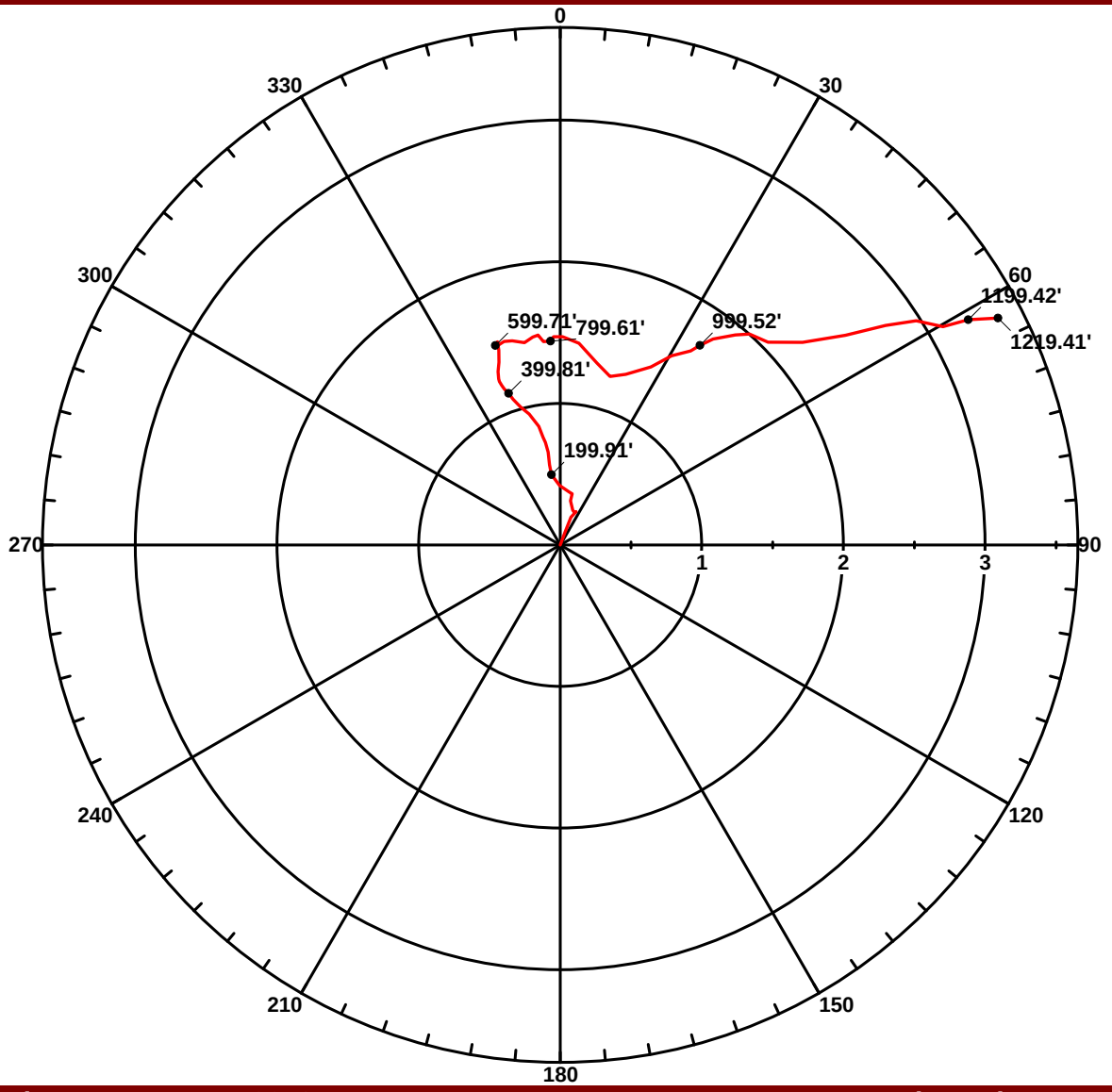
Date of Survey: Monday - January 15, 2018 **Balanced Tangential Calculation Method**

Southwest Exploration Services, LLC (480) 926-4558

POLAR VIEW - O-04

FLORENCE COPPER

Drift Distance = 3.48 Feet Drift Bearing = 62.6 Degrees True Vertical Depth = 1219.41 Feet



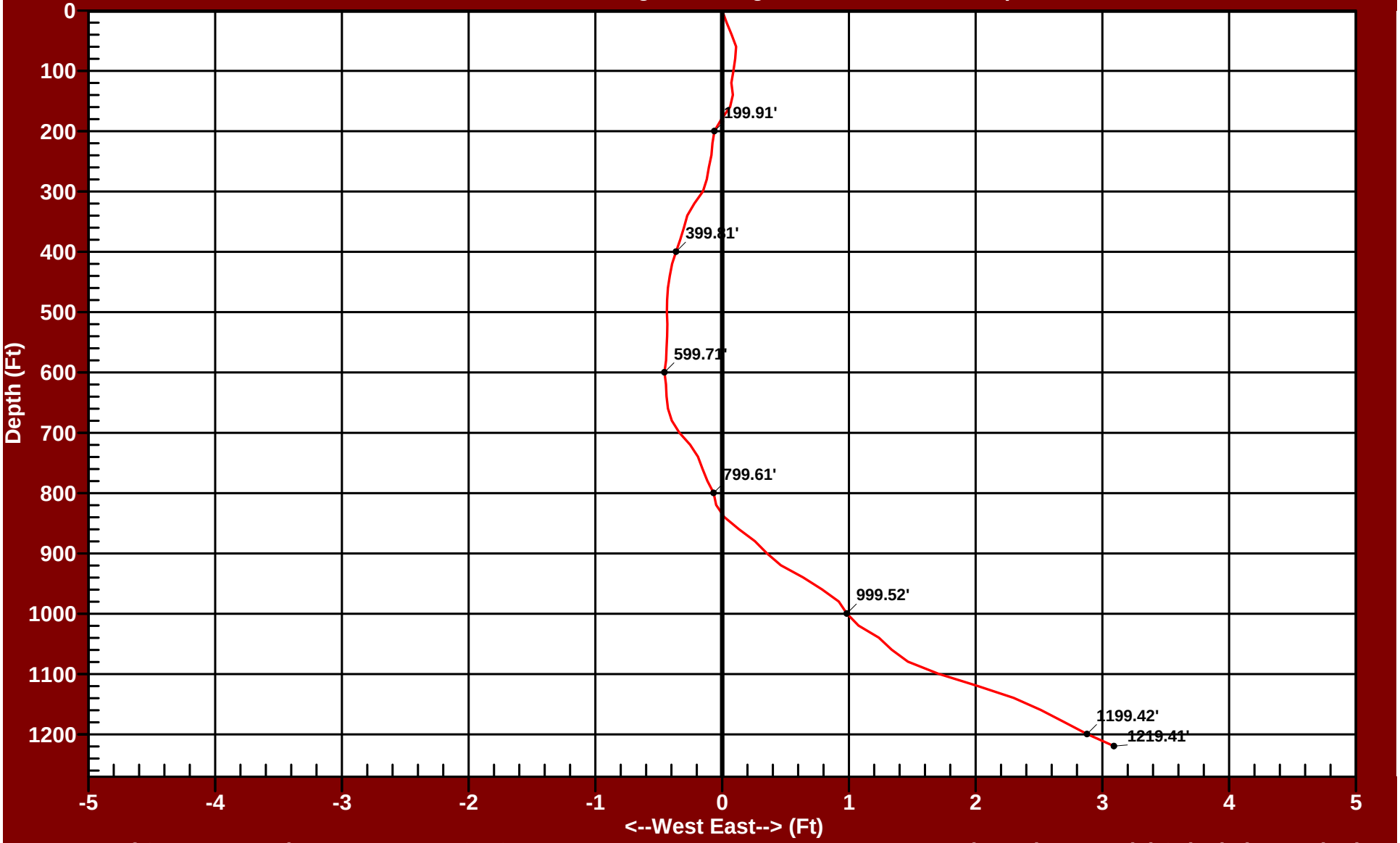
Date of Survey: Monday - January 15, 2018 **Balanced Tangential Calculation Method**

Southwest Exploration Services, LLC (480) 926-4558

EASTING RECTANGULAR VIEW - O-04

FLORENCE COPPER

Drift Distance = 3.48 Feet Drift Bearing = 62.6 Degrees True Vertical Depth = 1219.41 Feet



Date of Survey: Monday - January 15, 2018

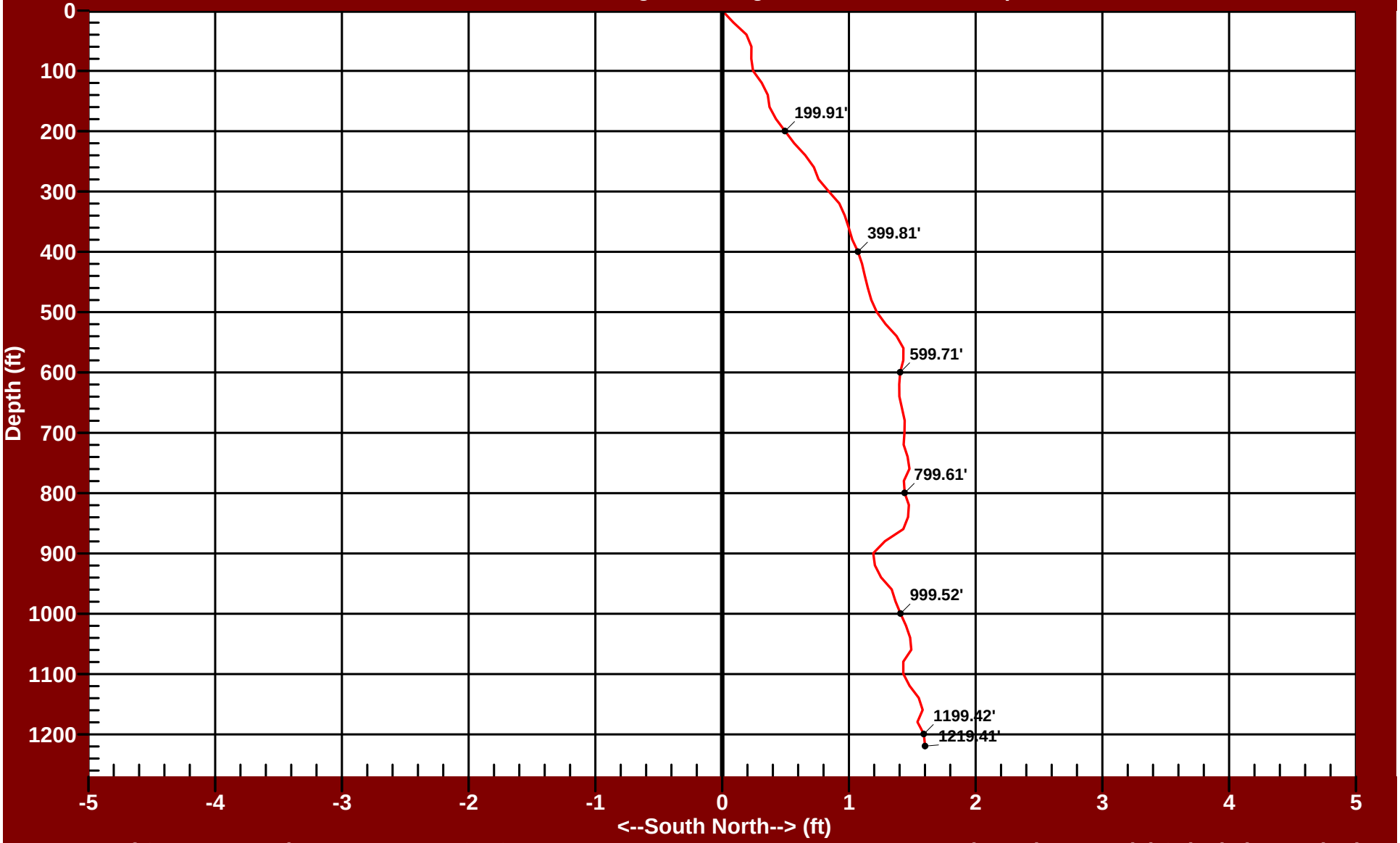
Balanced Tangential Calculation Method

Southwest Exploration Services, LLC (480) 926-4558

NORTHING RECTANGULAR VIEW - O-04

FLORENCE COPPER

Drift Distance = 3.48 Feet Drift Bearing = 62.6 Degrees True Vertical Depth = 1219.41 Feet



Date of Survey: Monday - January 15, 2018

Balanced Tangential Calculation Method

Southwest Exploration Services, LLC (480) 926-4558

Southwest Exploration Services, LLC

borehole geophysics & video services

COMPANY	FLORENCE COPPER		
WELL ID	O-04		
FIELD	FLORENCE COPPER		
COUNTY	PINAL	STATE	ARIZONA
TYPE OF LOGS: GAMMA - CALIPER		OTHER SERVICES	SONIC
MORE: TEMP. / FLUID COND.			4 PI DENSITY
LOCATION			DUAL DENSITY
SEC	TWP	RGE	
PERMANENT DATUM		ELEVATION	K.B.
LOG MEAS. FROM	GROUND LEVEL	ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	GROUND LEVEL		G.L.

DATE	3-22-18		TYPE FLUID IN HOLE	FORMATION WATER
RUN No	1	MUD WEIGHT		N/A
TYPE LOG	GAMMA - CALIPER - TFR	VISCOSITY		N/A
DEPTH-DRILLER	1200 FT	LEVEL		~229 FT
DEPTH-LOGGER	1191 FT	MAX. REC. TEMP.		34.44 Deg C
BTM LOGGED INTERVAL	1191 FT	IMAGE ORIENTED TO:		N/A
TOP LOGGED INTERVAL	SURFACE	SAMPLE INTERVAL		0.2 FT
DRILLER / RIG#	HYDRO RESOURCES	LOGGING TRUCK		TRUCK #750
RECORDED BY / Logging Eng.	M. QUINONES / A. OLSON	TOOL STRING/SN		MSI COMBO TOOL SN 5543
WITNESSED BY	COLLIN - H&A	LOG TIME:ON SITE/OFF SITE		7:30 AM

RUN	BOREHOLE RECORD		CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	?	SURFACE	40 FT	14"	STEEL	SURFACE	500 FT
2	20"	40 FT	500 FT	5"	FG	SURFACE	500 FT
3	12 1/4"	500 FT	TOTAL DEPTH	5"	PVC	500 FT	TOTAL DEPTH

COMMENTS:

.

Tool Summary:

Date	3-22-18	**Date**	3-22-18	**Date**	3-22-18
Run No.	1	**Run No.**	2	**Run No.**	3
Tool Model	MSI COMBO TOOL	**Tool Model**	ALT 4 RX SONIC	**Tool Model**	COMPROBE 4 PI
Tool SN	5543	**Tool SN**	4572	**Tool SN**	6009
From	SURFACE	**From**	238 FT	**From**	SURFACE
To	1191 FT	**To**	1191 FT	**To**	1191 FT
Recorded By	M. QUINONES	**Recorded By**	M. QUINONES	**Recorded By**	M. QUINONES
Truck No	750	**Truck No**	750	**Truck No**	750
Operation Check	3-22-18	**Operation Check**	3-22-18	**Operation Check**	3-22-18
Calibration Check	3-22-18	**Calibration Check**	N/A	**Calibration Check**	N/A
Time Logged	8:00 AM	**Time Logged**	8:35 AM	**Time Logged**	9:20 AM

Date	3-22-18	**Date**		**Date**	
Run No.	4	**Run No.**	5	**Run No.**	6
Tool Model	ALT QL DENSITY	**Tool Model**		**Tool Model**	
Tool SN	6187	**Tool SN**		**Tool SN**	
From	SURFACE	**From**		**From**	
To	1191 FT	**To**		**To**	
Recorded By	M. QUINONES	**Recorded By**		**Recorded By**	
Truck No	750	**Truck No**		**Truck No**	
Operation Check	3-22-18	**Operation Check**		**Operation Check**	
Calibration Check	3-22-18	**Calibration Check**		**Calibration Check**	
Time Logged	10:00 AM	**Time Logged**		**Time Logged**	

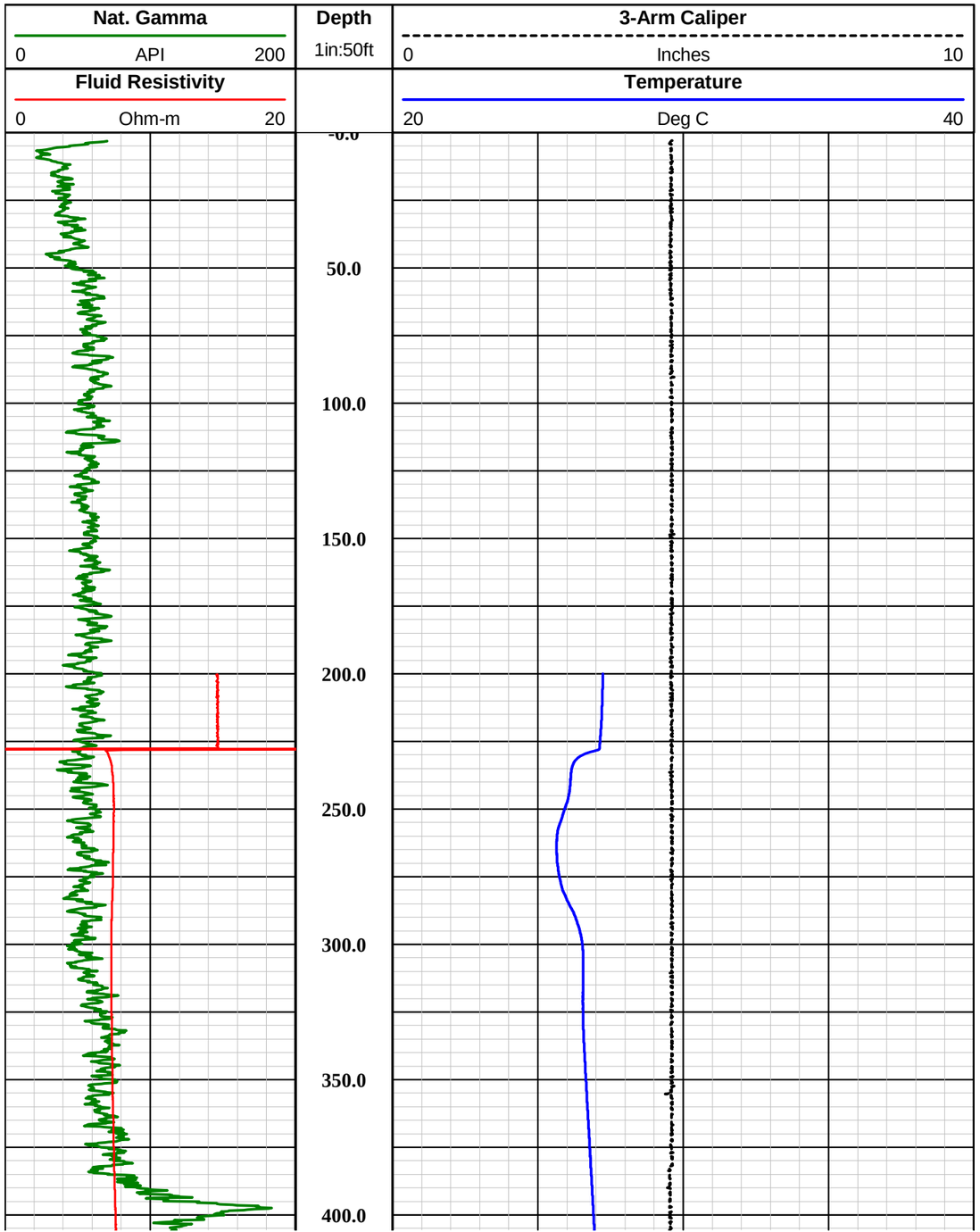
Additional Comments:

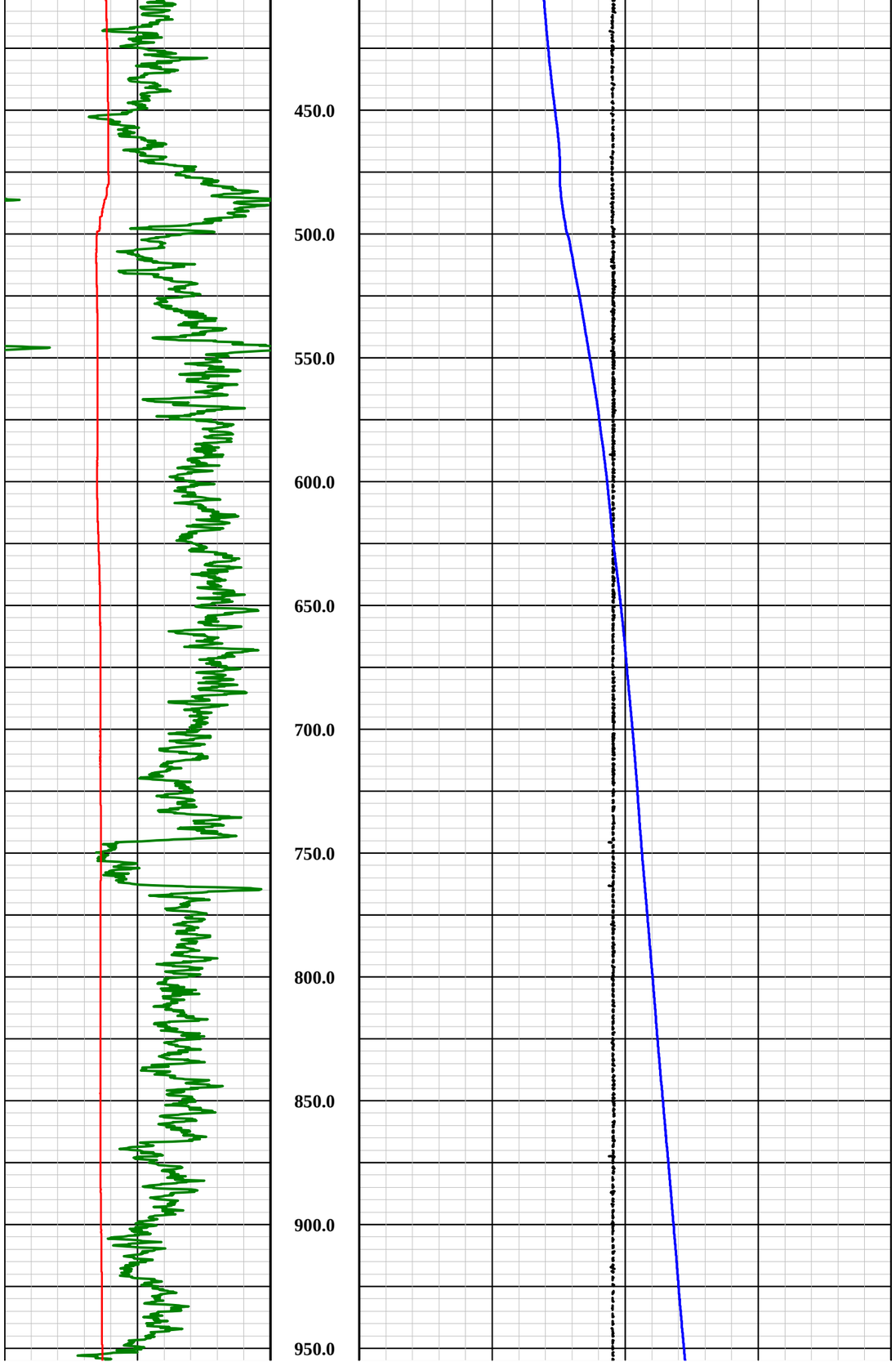
Caliper Arms Used: 9" **Calibration Points:** 4" & 12"

E-Log Calibration Range: N/A **Calibration Points:** N/A

Disclaimer:

All interpretations of log data are opinions based on inferences from electrical or other measurements. We do not guarantee the accuracy or correctness of any interpretations or recommendations and shall not be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our employees or agents. These interpretations are also subject to our general terms and conditions set out in our current Service Invoice.

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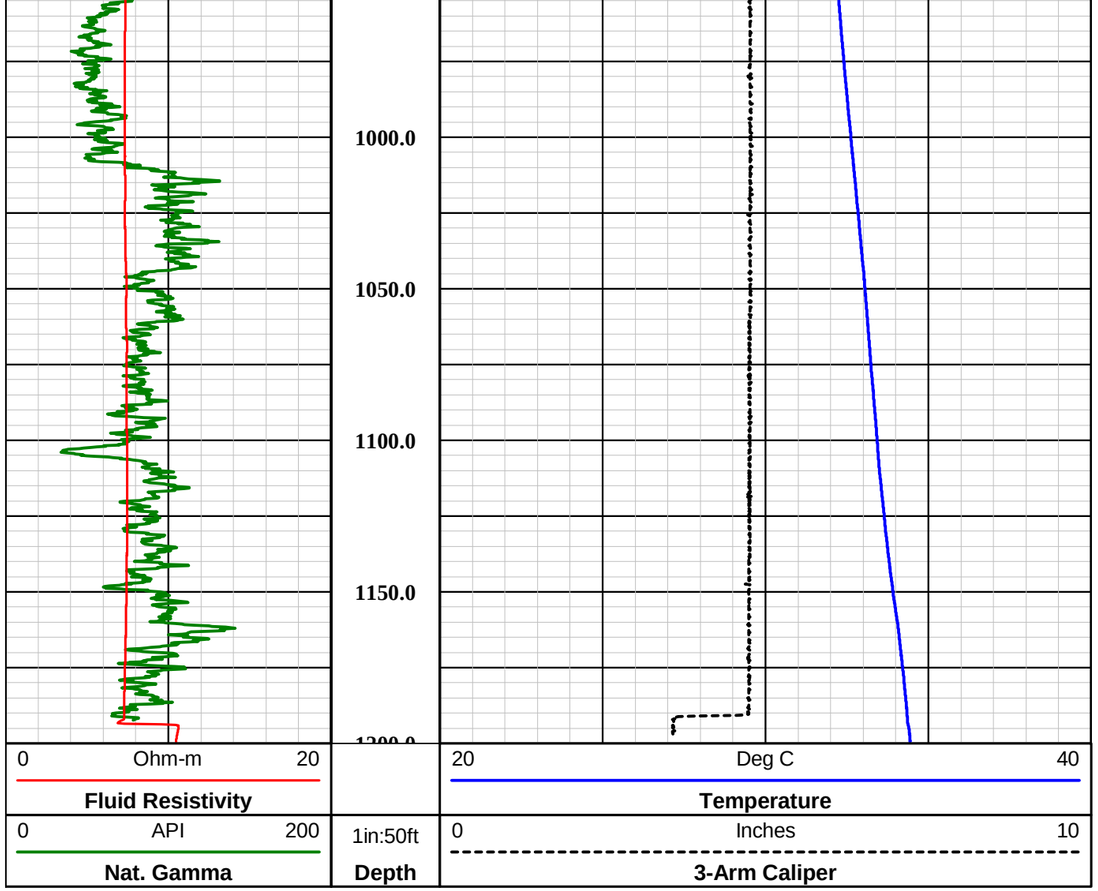


MSI Gamma-Caliper-Temperature-Fluid Resistivity

Probe Top = Depth Ref.

Single Conductor MSI Probe Top

Probe Length = 2.59 m or 8.5 ft
Probe Weight = 6.80 kg or 15.0 lbs

Natural Gamma and Caliper can only be collected logging up hole.

Fluid Temperature/Resistivity can only be collected logging down hole.

Temperature Rating: 70 Deg C (158 Deg F)
Presure Rating: 200 bar (2900 psi)

Natural Gamma Ray = 0.76 m (29.75 in)

NOTE: Lengths on a particular tool may vary from those listed on this document due to probe sizes and styles utilized

3-Arm Caliper = 1.44 m (56.75 in)

Distance from tool top: 2.20 m (86.5 in)

Available Arm Sizes: 3", 9", and 15"

TFR (Temperature/Fluid Resistivity) = 0.39 m (15.5 in)

1.375" or 34.9 mm Diameter

Southwest Exploration Services, LLC
borehole geophysics & video services

Company	FLORENCE COPPER
Well	O-04
Field	FLORENCE COPPER
County	PINAL
State	ARIZONA

Final GCT Summary

APPENDIX F

Cement Bond Log Summary

WELL O-04

Geophysical Log Summary

COMPANY:	FLORENCE COPPER COMPANY	Logging Engineer:	VARIOUS
FIELD:	FLORENCE COPPER SITE	Date Logged:	VARIOUS
WELL ID:	O-04	Processed By:	K.M / B.C.
COUNTY:	PINAL STATE: ARIZONA	Date Processed:	07-17-18

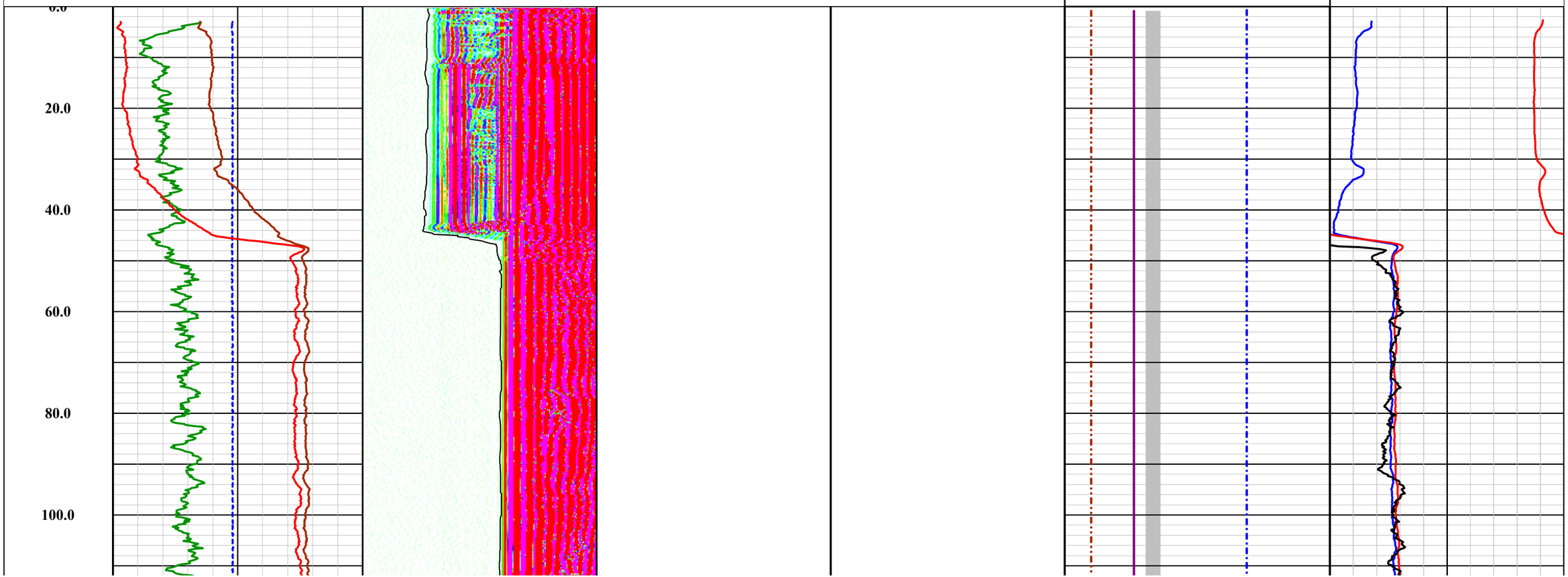
Southwest Exploration Services, LLC
borehole geophysics & video services

HALEY ALDRICH

O-04 Sonic CBL with Density Summary

Depth
1in:20ft

Nat. Gamma Cased 3-22-18 0 API 200	**RX1 - VDL (60mm)** Open 1-15-18 100 uSec 1000	**RX1 - VDL** Cased 3-22-18 100 uSec 1020	**RX4 - VDL** Cased 3-22-18 100 uSec 1020	**Velocity Analysis** Cased 3-22-18 40 us/ft 220	**Near Density** Cased 3-22-18 1 g/cc 4
3-Arm Caliper Cased 3-22-18 0 Inches 10	**RX1 - TT (60mm)** Open 1-15-18 100 uSec 1000	**RX1 - TT** Cased 3-22-18 100 uSec 1020	**RX4 - TT** Cased 3-22-18 100 uSec 1020	**P-Wave Slow** Cased 3-22-18 40 us/ft 220	**Far Density** Cased 3-22-18 1 g/cc 4
Comp Density Cased 3-22-18 -1 g/cc 3				**Steel** 40 us/ft 220	**4 Pi Density (Dry)** Cased 3-22-18 1200 CPS 900
Compensation Cased 3-22-18 -3 g/cc 1				**FRP** 40 us/ft 220	**4 Pi Density (Wet)** Cased 3-22-18 300 CPS 0
				PVC 40 us/ft 220	
				Cement	



120.0

140.0

160.0

180.0

200.0

220.0

240.0

260.0

280.0

300.0

320.0

Fluid Level ~227.8'

340.0

360.0

380.0

400.0

420.0

440.0

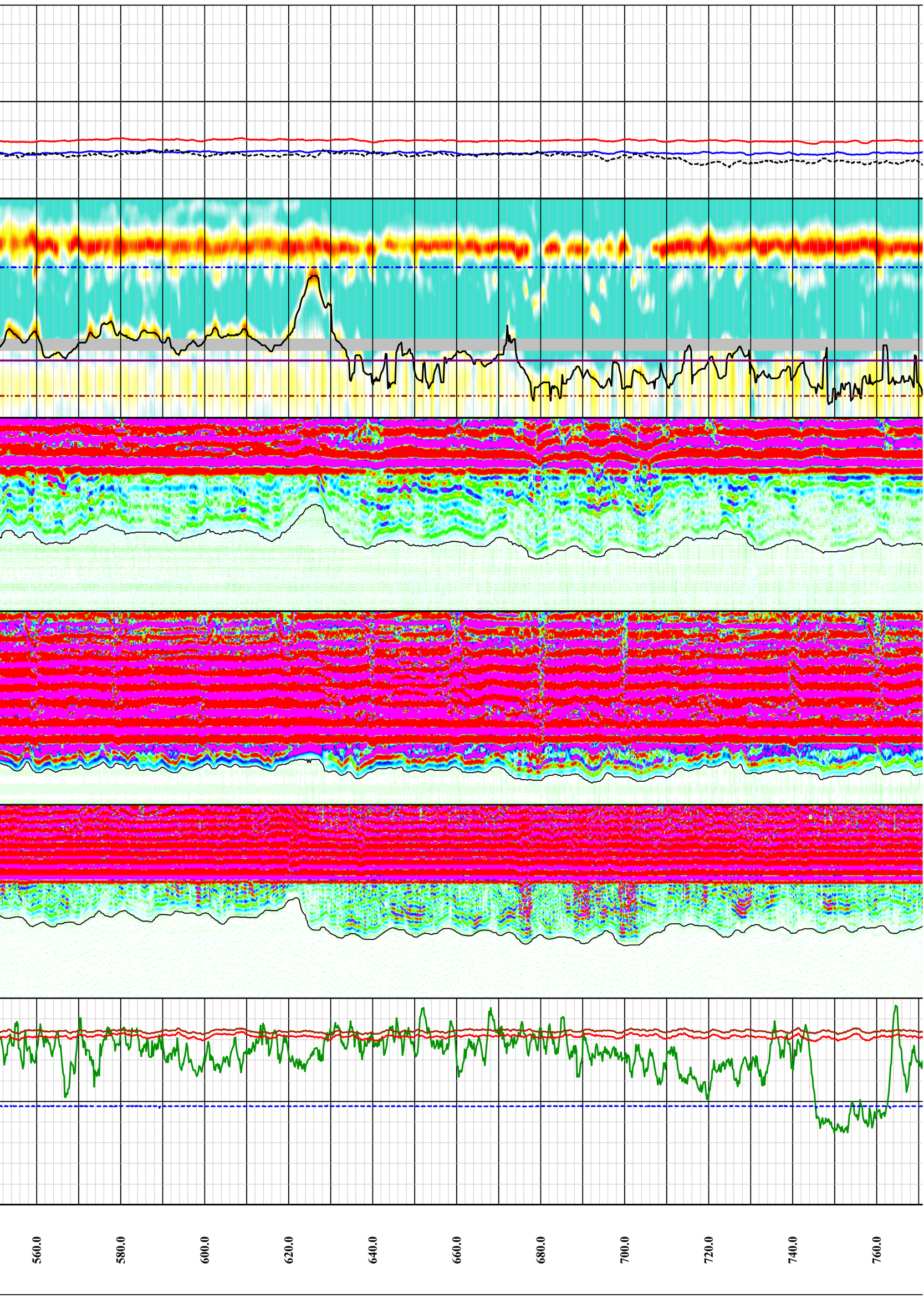
460.0

480.0

500.0

520.0

540.0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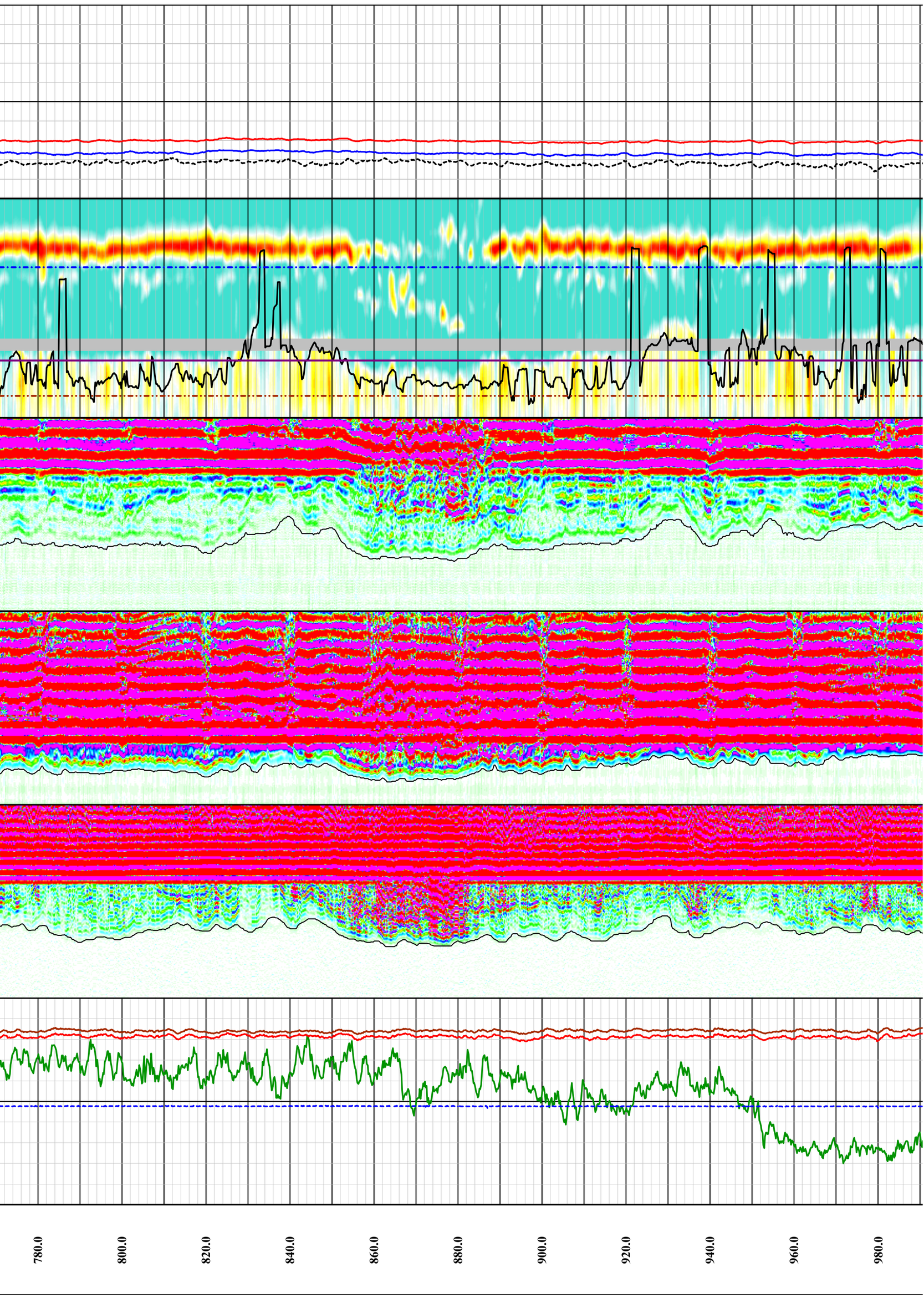
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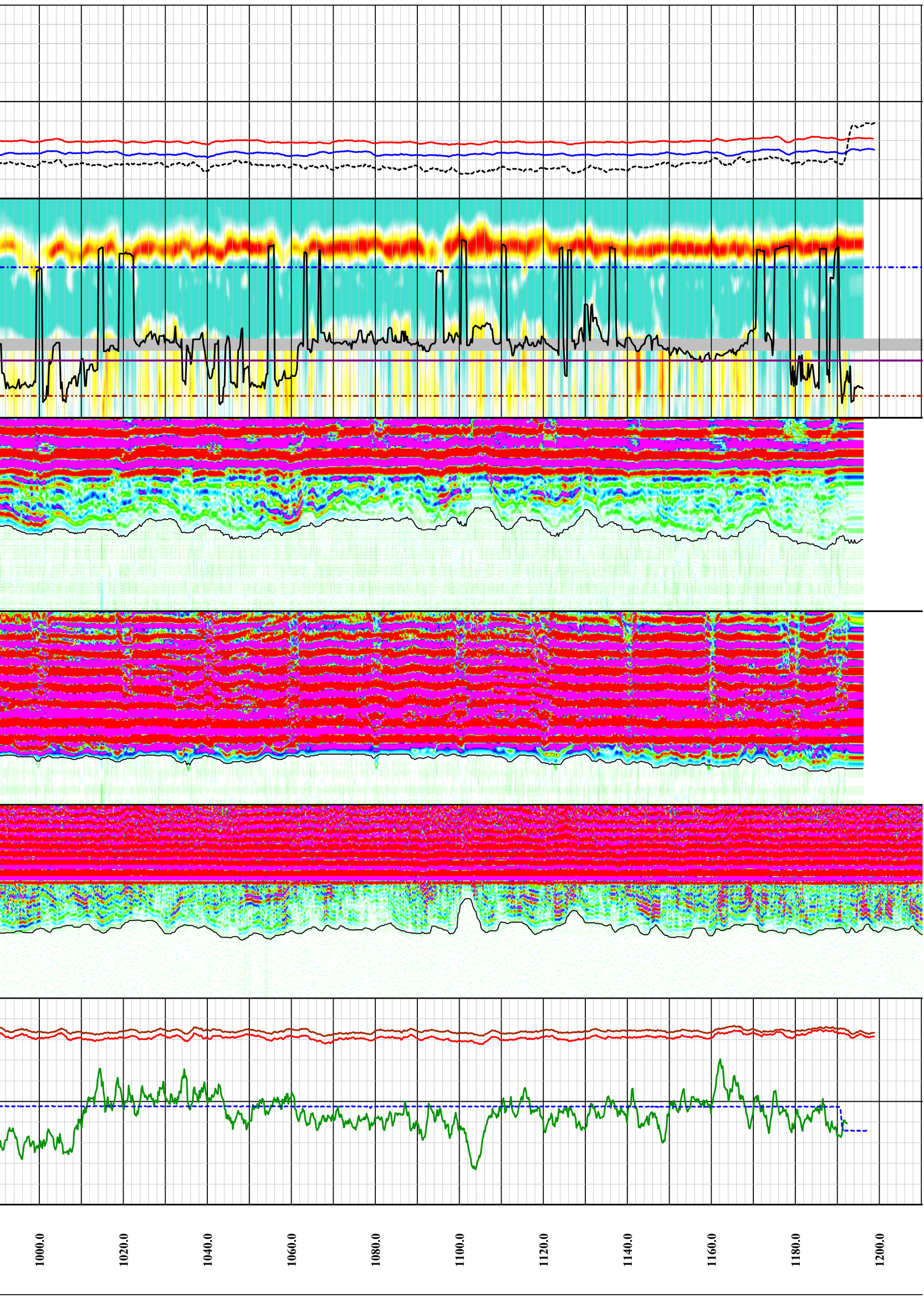
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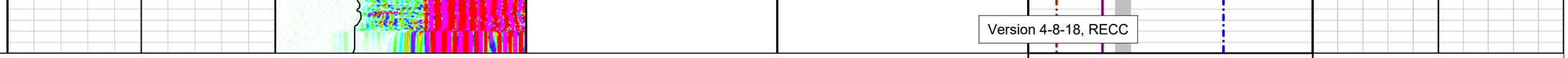


	-3 g/cc 1 Cased 3-22-18 **Compensation**				Cement 40 us/ft 220 **PVC** 40 us/ft 220 **FRP** 40 us/ft 220 **Steel**	300 CPS 0 Cased 3-22-18 **4 Pi Density (Wet)**
	-1 g/cc 3 Cased 3-22-18 **Comp Density**					1200 CPS 900 Cased 3-22-18 **4 Pi Density (Dry)**
	0 Inches 10 Cased 3-22-18 **3-Arm Caliper**	100 uSec 1000 Open 1-15-18 **RX1 - TT (60mm)**	100 uSec 1020 Cased 3-22-18 **RX1 - TT**	100 uSec 1020 Cased 3-22-18 **RX4 - TT**	40 us/ft 220 Cased 3-22-18 **P-Wave Slow**	1 g/cc 4 Cased 3-22-18 **Far Density**
	0 API 200 Cased 3-22-18 **Nat. Gamma**	100 uSec 1000 Open 1-15-18 **RX1 - VDL (60mm)**	100 uSec 1020 Cased 3-22-18 **RX1 - VDL**	100 uSec 1020 Cased 3-22-18 **RX4 - VDL**	40 us/ft 220 Cased 3-22-18 **Velocity Analysis**	1 g/cc 4 Cased 3-22-18 **Near Density**
1in:20ft **Depth**	**O-04 Sonic CBL with Density Summary**					

APPENDIX G

SAPT Documentation

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
STANDARD ANNULAR PRESSURE TEST

Operator FLORENCE COPPER, INC
Address 1575 W. HUNT HWY
FLORENCE, AZ 85132
Well Name O-04

State Permit No. P-101704
USEPA Permit No. R9UIC-AZ3-FY11-1
Date of Test 3/28/2018
Well Type ENV-MONITORING- Class III

LOCATION INFORMATION SE Quarter of the NW Quarter of the SW Quarter of Section 28; Range 9E; Township 4S; County PINAL;

Company Representative IAN REAM; Field Inspector LAUREN CANDREVA;

Type of Pressure Gauge Pressure transducer with data logger inch face; 300 psi full scale; 0.001 psi increments;

New Gauge? Yes ☑ No ☐ If no, date of calibration ____ Calibration certification submitted? Yes ☐ No ☑

TEST RESULTS	
Readings must be taken at least every 10 minutes for a minimum of 30 minutes for Class II, III and V wells and 60 minutes for Class I wells. For Class II wells, annulus pressue should be at least 300 psig. For Class I wells, annulus pressure should be the greater of 300 psig or 100 psi above maximum permitted injection pressure. Original chart recordings must be submitted with this form.	5-year or annual test on time? Yes ☐ No ☑ 2-year test for TA'd wells on time? Yes ☐ No ☑ After rework? Yes ☐ No ☑ Newly permitted well? Yes ☑ No ☐

.

Time	Pressure (in psig) Annulus	Tubing
17:31	167.34	same
17:41	167.31	same
17:51	167.55	same
18:01	167.84	same

Casing size 5" - NOMINAL
Tubing size 2"
Packer type INFLATABLE PACKER
Packer set @ 1.37(top), 479.70(bottom)
Top of Permitted Injection Zone 430 feet
Is packer 100 ft or less above top of Injection Zone ? Yes ☑ No ☐
If not, please submit a justification.
Fluid return (gal.) 0.47
Comments: Two tests were conducted to confirm results, data for both tests attached in the chart and table

Test Pressures: Max. Allowable Pressure Change: Initial test pressure x 0.05 8.37 psi
Test Period Pressure change 0.5 psi

Test Passed ☑ Test Failed ☐

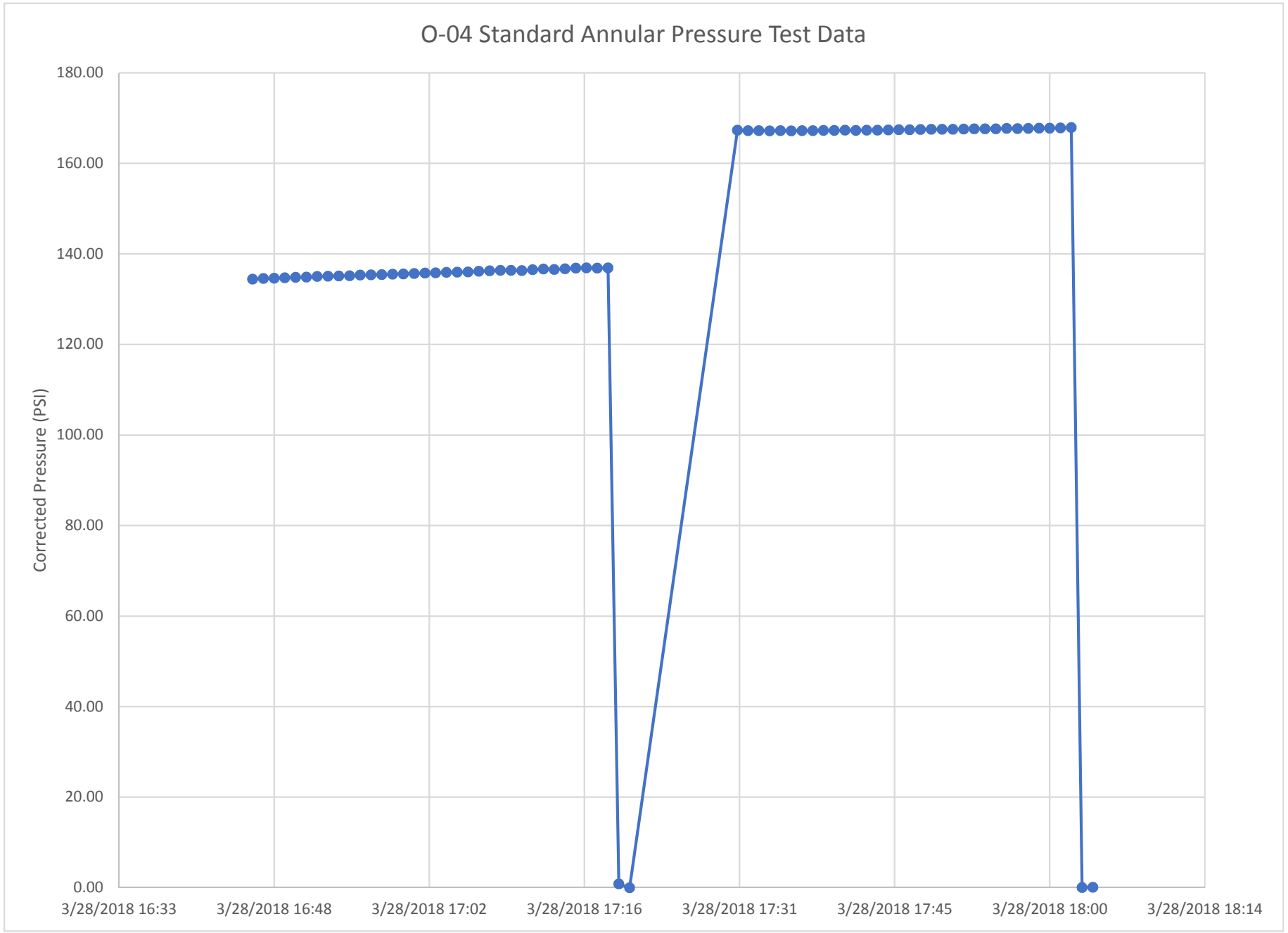
If failed test, well must be shut in, no injection can occur, and USEPA must be contacted within 24 hours. Corrective action needs to occur, the well retested, and written authorization received before injection can recommence.

I certify under penalty of law that this document and all attachments are, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. (See 40 CFR 144.32(d))

Ian Ream
Printed Name of Company Representative

Signature of Company Representative

9-12-2018
Date


O-04 Standard Annular Pressure Test Data
Corrected Pressure (PSI)
180.00
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
3/28/2018 16:33
3/28/2018 16:48
3/28/2018 17:02
3/28/2018 17:16
3/28/2018 17:31
3/28/2018 17:45
3/28/2018 18:00
3/28/2018 18:14

Well O-04 SAPT Data		
Transducer Serial Number:	554227	
Tranducer Model Number:	Level TROLL 400 non-vented 300 psi	
Date and Time	Pressure (PSI)	Corrected Pressure (PSI) (Sensor pressure - barometric pressure)
3/28/2018 16:46	148.345	134.44
3/28/2018 16:47	148.485	134.58
3/28/2018 16:48	148.554	134.65
3/28/2018 16:49	148.639	134.73
3/28/2018 16:50	148.745	134.84
3/28/2018 16:51	148.806	134.90
3/28/2018 16:52	148.929	135.02
3/28/2018 16:53	148.966	135.06
3/28/2018 16:54	149.01	135.10
3/28/2018 16:55	149.097	135.19
3/28/2018 16:56	149.212	135.31
3/28/2018 16:57	149.277	135.37
3/28/2018 16:58	149.35	135.44
3/28/2018 16:59	149.417	135.51
3/28/2018 17:00	149.487	135.58
3/28/2018 17:01	149.581	135.67
3/28/2018 17:02	149.7	135.79
3/28/2018 17:03	149.749	135.84
3/28/2018 17:04	149.818	135.91
3/28/2018 17:05	149.895	135.99
3/28/2018 17:06	149.945	136.04
3/28/2018 17:07	150.065	136.16
3/28/2018 17:08	150.153	136.25
3/28/2018 17:09	150.273	136.37
3/28/2018 17:10	150.271	136.36
3/28/2018 17:11	150.233	136.33
3/28/2018 17:12	150.437	136.53
3/28/2018 17:13	150.58	136.67
3/28/2018 17:14	150.488	136.58
3/28/2018 17:15	150.615	136.71
3/28/2018 17:16	150.763	136.86
3/28/2018 17:17	150.841	136.93
3/28/2018 17:18	150.773	136.87
3/28/2018 17:19	150.82	136.91
3/28/2018 17:20	14.747	0.84
3/28/2018 17:21	13.907	0.00
3/28/2018 17:31	181.245	167.34
3/28/2018 17:32	181.155	167.25
3/28/2018 17:33	181.128	167.22
3/28/2018 17:34	181.096	167.19
3/28/2018 17:35	181.122	167.22

Well O-04 SAPT Data		
Transducer Serial Number:	554227	
Tranducer Model Number:	Level TROLL 400 non-vented 300 psi	
Date and Time	Pressure (PSI)	Corrected Pressure (PSI) (Sensor pressure - barometric pressure)
3/28/2018 17:36	181.085	167.18
3/28/2018 17:37	181.152	167.25
3/28/2018 17:38	181.149	167.24
3/28/2018 17:39	181.165	167.26
3/28/2018 17:40	181.205	167.30
3/28/2018 17:41	181.219	167.31
3/28/2018 17:42	181.188	167.28
3/28/2018 17:43	181.219	167.31
3/28/2018 17:44	181.25	167.34
3/28/2018 17:45	181.289	167.38
3/28/2018 17:46	181.338	167.43
3/28/2018 17:47	181.35	167.44
3/28/2018 17:48	181.365	167.46
3/28/2018 17:49	181.417	167.51
3/28/2018 17:50	181.433	167.53
3/28/2018 17:51	181.457	167.55
3/28/2018 17:52	181.48	167.57
3/28/2018 17:53	181.515	167.61
3/28/2018 17:54	181.544	167.64
3/28/2018 17:55	181.548	167.64
3/28/2018 17:56	181.613	167.71
3/28/2018 17:57	181.604	167.70
3/28/2018 17:58	181.654	167.75
3/28/2018 17:59	181.697	167.79
3/28/2018 18:00	181.7	167.79
3/28/2018 18:01	181.746	167.84
3/28/2018 18:02	181.811	167.90
3/28/2018 18:03	13.96	0.05
3/28/2018 18:04	13.97	0.06

APPENDIX H

Well Development Field Forms

DEVELOPMENT
FIELD DATA LOG

Project Name: FCI PTF	Project No.: 129687.007
Well No.: ~~0-06~~ 0-04	Date: 2/27/18
Location: ~~0-06~~ Florence, AZ	Measuring Point: Discharge
Total Depth of Well (ft bls): 1200	Screen Interval (ft bls): 500-1200
Pump Type/Setting (ft bls): ~~grundfos electric~~ -	Activity: ~~Air Pumping~~ Airlift
How Q Measured: cone/stopwatch	H&A Personnel: S. Hensel

Time	Discharge (gpm)	Pumping ~~Water~~ Level (ft)	Specific Capacity (gpm/ft)	Sand Content ~~(%)~~ (ppm)	pH	Sp. Cond. (µmhos/cm)	Temp. °C	Turbidity NTU	Comments
735	5.3	422	-	0.0	8.11	1309	17.45	710.2	Airlift at 422, airline at 378
750	5.3	422	-	0.0	8.18	1361	19.13	45.6	cloudy
805	5.3	422	-	0.0	8.20	1386	19.71	24.7	"
820	5.3	422	-	0.0	8.22	1400	20.01	19.6	"
835	5.3	422	-	0.0	8.24	1409	20.70	14.0	clear
1010	5.6	617	-	0.1	8.01	14360	21.15	78.7	cloudy, airline at 420
1025	5.6	617	-	0.0	8.19	1420	21.56	61.1	cloudy
1040	5.6	617	-	0.0	8.17	1424	21.83	51.1	"
1055	5.6	617	-	0.0	8.20	1437	22.48	31.8	"
1120	5.6	617	-	0.0	8.24	1441	22.60	17.2	clear
1235	8.3	810	-	0.0	8.05	1453	22.63	57.7	cloudy, airline 685
1250	8.3	810	-	0.0	8.10	1444	23.62	~~over~~ 26.4	cloudy
1305	8.3	810	-	0.0	8.17	1449	23.94	11.2	clear
1320	8.3	810	-	0.0	8.12	1451	23.90	8.77	"
1335	8.3	810	-	0.0	8.12	1451	24.05	6.74	"
1420	8.5	1005	-	0.2	7.77	1440	23.33	124	Brown, airline at same depth
1440	8.5	1005	-	0.0	7.52	1422	22.90	54.2	cloudy
1455	8.5	1005	-	0.0	8.12	1408	22.84	14.2	clear
1510	8.5	1005	-	0.0	8.20	1407	23.09	10.7	clear
1525	8.5	1005	-	0.0	8.27	1416	23.53	8.05	clear
1530			-	-	-	-	-	-	Pump off
1710			-	-	-	-	-	-	Pump on
1715	7.9	1199	-	0.0	8.05	1338	20.93	19.5	clear, airline at same depth
1725	7.9	1199	-	5.0	8.00	1259	21.84	overrange	opaque brown
1740	7.9	1199	-	5.2	8.02	1382	22.04	overrange	opaque brown
1755	7.9	1199	-	0.5	8.20	1369	21.80	overrange	brown
1810	7.9	1199	-	0.3	8.21	1361	21.48	399	brown/tan
1825	7.9	1199	-		8.23	1350	21.34	153	tan

Comments:

HALEY ALDRICH

DEVELOPMENT
FIELD DATA LOG

Project Name: FCI PTF	Project No.: 129687-007
Well No.: O-04	Date: 3/28/18 - 3/1/18
Location: Florence, AZ	Measuring Point: Discharge
Total Depth of Well (ft bls): 1200	Screen Interval (ft bls): 500 - 1200
Pump Type/Setting (ft bls): -	Activity: Airlift
How Q Measured: Cone / Stopwatch	H&A Personnel: S. Hessel

Time	Discharge ~~(gpm)~~ gpm	Pumping ~~Water~~ Level (ft)	Specific Capacity (gpm/ft)	Sand Content (ppm)	pH	Sp. Cond. (µmhos/cm)	Temp. °C	Turbidity NTU	Comments
725	8.8	1199	-	0.0	7.90	1272	17.27	22.9	cloudy
740	8.8	1199	-	1.1	8.26	1343	19.71	274	tan/brown
755	8.8	1199	-	0.2	8.30	1359	20.88	114	tan
810	8.8	1199	-	0.0	8.34	1370	21.01	34.1	cloudy
825	8.8	1199	-	0.0	8.32	1374	21.15	19.2	clear
840	9.2	1199	-	0.5	8.34	1356	20.91	Overrange	brown, opaque
855	9.2	1199	-	0.7	8.32	1410	22.83	Overrange	brown, opaque
~~856~~ 910	9.2	1199	-	0.1	8.33	1400	22.70	237	tan
925	9.2	1199	-	0.1	8.33	1402	22.69	119	tan/cloudy
955	9.0	1199	-	0.5	8.22	1344	21.58	Overrange	brown, opaque
1010	9.0	1199	-	0.3	8.38	1402	23.03	331	tan
1025	9.0	1199	-	0.0	8.38	1381	22.22	56.9	cloudy
1040	9.0	1199	-	0.0	8.37	1380	22.18	12.4	clear
1055	9.2	1199	-	0.3	8.34	1381	22.72	642	brown/tan
1115	9.2	1199	-	0.0	8.37	1387	22.54	83.5	cloudy
1136	9.2	1199	-	0.0	8.35	1404	23.51	13.6	clear
1140	-	-	-	-	-	-	-	-	Pump off
0940	-	-	-	-	-	-	-	~~272~~	Pump on
0945	5.66	~~420~~ 422	-	0.0	8.11	1345	17.11	292	tan/cloudy
1005	5.66	422	-	0.0	8.32	1419	19.81	146	cloudy
1020	5.66	422	-	0.0	8.24	1454	20.37	216	cloudy
1040	5.66	422	-	0.0	8.27	1473	20.75	151	cloudy
1100	5.66	422	-	0.0	8.29	1490	20.80	74.5	cloudy
1115	5.66	422	-	0.0	8.29	1509	21.47	57.5	~~cloudy~~ /clear
1120	-	-	-	-	-	-	-	-	Pump off
1210	-	-	-	-	-	-	-	-	Pump on
1220	6.34	~~610~~ 617	-	0.0	8.15	1519	21.74	69.0	cloudy
1240	6.34	~~615~~ 617	-	0.0	8.20	1519	22.49	60.4	cloudy

3/28/18

3/1/18

Comments:

HALEY ALDRICH

DEVELOPMENT
FIELD DATA LOG

Project Name: FLI PTF	Project No.: 129687-007
Well No.: O-04	Date: 3/1/18 - 3/2/18
Location: Florence, AZ	Measuring Point: Discharge
Total Depth of Well (ft bls): 1200	Screen Interval (ft bls): 505 - 1200
Pump Type/Setting (ft bls): -	Activity: Airlift
How Q Measured: cone / stopwatch	H&A Personnel: C Hensel

Time	Discharge (gpm)	Pumping ~~Water~~ Level (ft)	Specific Capacity (gpm/ft)	Sand Content (ppm)	pH	Sp. Cond. (µmhos/cm)	Temp. °C	Turbidity NTU	Comments
1255	6.34	~~610~~ 617	-	0.0	8.25	1519	22.65	50.4	~~Startup~~ clear
1310	6.34	~~617~~ 617	-	0.0	8.30	1514	22.77	47.7	clear
1330	6.34	~~610~~ 617	-	0.0	8.28	1511	22.97	46.2	clear
1345	6.34	~~610~~ 617	-	0.0	8.28	1509	23.06	34.3	clear
1350	-	-	-	-	-	-	-	-	Pump off
1450	-	-	-	-	-	-	-	-	Pump on
1455	7.90	810	-	0.0	8.19	1515	23.38	48.0	clear
1510	7.90	810	-	0.0	8.19	1500	23.42	39.7	clear
1530	7.90	810	-	0.0	8.22	1493	23.89	24.0	clear
1545	7.90	810	-	0.0	8.25	1493	23.86	21.0	clear
1600	7.90	810	-	0.0	8.23	1491	23.81	18.9	clear
1605	-	-	-	-	-	-	-	-	Pump off
1640	-	-	-	-	-	-	-	-	Pump on
1645	8.32	1005	-	0.0	8.23	1466	23.21	14.0	clear
1700	8.32	1005	-	0.0	8.24	1562	23.22	135	cloudy
1715	8.32	1005	-	0.0	8.22	1450	23.29	14.8	clear
1730	8.32	1005	-	0.0	8.22	1435	23.11	11.6	clear
3/1/18 1745	8.32	1005	-	0.0	8.21	1431	23.27	8.18	clear
1755	-	-	-	-	-	-	-	-	Pump off
3/2/18 755	-	-	-	-	-	-	-	-	Pump on
800	8.67	1199	-	0.0	7.87	~~53~~ 1240	17.87	48.5	cloudy
820	8.67	1199	-	0.2 ~~0.0~~	8.19	1419	21.44	735	brown / opaque
835	8.67	1199	-	0.0	8.19	1376	21.95	70.3	cloudy
850	8.67	1199	-	0.0	8.26	1371	22.86	30.7	clear
915	8.67	1199	-	0.0	8.23	1372	23.08	11.7	clear
935	9.87	1199	-	0.5	8.12	1357	23.07	overrange	brown / opaque
1005	9.87	1199	-	0.0	8.26	1381	23.5	17.3	clear
1040	9.87	1199	-	0.0	8.24	1348	23.8	~~5.26~~ 5.19	clear

Comments:

HALEY ALDRICH

DEVELOPMENT
FIELD DATA LOG

Project Name: FCI PTF	Project No.: 129687-007
Well No.: O-04	Date: 3/2/18
Location: Florence, AZ	Measuring Point: Discharge
Total Depth of Well (ft bls): 1200	Screen Interval (ft bls): 500 - 1200
Pump Type/Setting (ft bls): ~	Activity: Airlift
How Q Measured: cone / stopwatch	H&A Personnel: S Hensel

Time	Discharge (gpm)	Pumping ~~Water~~ Level (ft)	Specific Capacity (gpm/ft)	Sand Content (ppm)	pH	Sp. Cond. (µmhos/cm)	Temp. °C	Turbidity NTU	Comments	
1100	9.70	1199	~	0.3	8.25	1379	23.70	847	~~clear~~ brown/opaque	
1120	9.70	1199	~	0.0	8.32	1384	23.84	27.2	clear	
1140	9.70	1199	~	0.0	8.23	1388	23.94	5.19	clear	
1205	9.75	1199	~	0.0	8.23	1387	24.02	1.91	cloudy	
1220	9.75	1199	~	0.0	8.26	1396	24.35	21.3	clear	
1234	9.75	1199	~	0.0	8.29	1390	24.37	13.4	clear	
1255	9.75	1199	~	0.0	8.25	1394	24.46	5.86	clear	
1300	~		~	~			~		Pump off, end airlift	
			DTW							
3-3-18	Set pump at 1164									Totalizer
1435	Start Pump.		Totalizer:		473500					
1436	~60	1164	219	<0.1	7.06	2430	22.37	235	Brown, sl. cloudy	
1450	~60	1164	~	<0.1	7.53	2311	25.16	13.7	Clear	474300
1505	~60	1164	~	0.0	7.58	2284	25.15	11.5	"	475300
1520	~60	1164	255.8	0.0	7.57	2279	25.29	5.78	"	467100
1535	~60	1164	256.0	0.0	7.65	2260	25.08	3.55	"	477000
1540	PUMP	OFF								
1605			220.6						~	
1606	PUMP	ON							~	
1607	~60	1164	251.4	<0.1	7.60	2246	~~24.60~~	3.29	clear	
1620	~60	1164	254.7	0.0	7.70	2262	25.23	3.61	"	477900
1635	~60	1164	255.9	0.0	7.62	2251	25.14	4.38	"	478700
1638	PUMP	OFF								478900
1707			220.8							
1708	PUMP	ON								
1709	~60	1164	~~255~~ 249	7 0.0	7.64	2205	24.54	6.41	clear	
1720	~60	1164	254.4	0.0	7.68	2233	25.09	7.03	"	479700
1735	~60	1164	255.8	0.0	7.65	2230	25.10	5.07	"	480500
1739	PUMP OFF									480700

Comments:

HALEY ALDRICH

DEVELOPMENT
FIELD DATA LOG

Project Name: FCT PTF	Project No.: 129667-007
Well No.: O-04	Date: 3/4/18
Location: Florence, AZ	Measuring Point: spicket
Total Depth of Well (ft bls): 1200	Screen Interval (ft bls): 500-1200
Pump Type/Setting (ft bls): grundfos electric	Activity: Pumping
How Q Measured: Totalizer	H&A Personnel: S Hensel

Time	Discharge (gpm)	Pumping Water Level (ft)	Specific Capacity (gpm/ft)	Sand Content (ppm)	pH	Sp. Cond. (µmhos/cm)	Temp. °C	Turbidity NTU	Comments	(bgs) DTW	(gal) Totalizer
0715	–	–	–	–	–	–	–	–	Pump on	216.25	480700
0720	66	1164	–	0.0	8.12	2011	20.86	73.7	cloudy	216.25	480700
0725	–	–	–	–	–	–	–	–	Pump off	–	
0730	–	–	–	–	–	–	–	–	Pump on	–	
0745	66	1164	–	0.0	7.45	2058	21.44	6.68	clear	251.05	482100
0800	66	1164	–	0.0	7.44	2161	23.94	3.26	clear	252.25	483100
0815	66	1164	–	0.0	7.46	2154	23.78	2.07	clear	252.85	484000
0820	–	–	–	–	–	–	–	–	Pump off	252.93	484100
0835	–	–	–	–	–	–	–	–	Pump on	218.75	484100
0840	68	1164	–	0.0	7.43	2226	18.36	2.13	clear	232.5	484200
0900	68	1164	–	0.0	7.46	2157	24.05	3.64	clear	291.25	485300
0915	68	1164	–	0.0				2.23	clear	251.55	486100
0920	–	–	–	–	–	–	–	–	Pump off	251.60	486400
1025	–	–	–	–	–	–	–	–	Pump on	212.35	486400
1030	–	900	–	0.0	7.66	2107	23.34	24.4	clear	213.20	486600
1100	63	900	–	0.0	7.48	2176	24.87	7.33	clear	245.15	488500
1115	63	900	–	0.0	7.54	2172	24.81	9.97	clear	245.50	489500
1120	–	–	–	–	–	–	–	–	Pump off	245.82	489600
1135	–	–	–	–	–	–	–	–	Pump on	214.20	489600
1140	70	900	–	0.0	7.51	2128	23.68	8.03	clear	216.20	489700
1200	70	900	–	0.0	7.58	2162	24.87	9.32	clear	245.75	491200
1220	70	900	–	0.0	7.53	2056	22.26	5.59	clear	248.65	492200
1225	–	–	–	–	–	–	–	–	Pump off	249.95	492300
1250	–	–	–	–	–	–	–	–	Pump on	213.75	492300
1255	75	900	–	0.0	7.59	2127	24.06	5.19	clear	214.95	492500
1310	75	900	–	0.0	7.54	2132	24.25	9.55	clear	244.15	493400
1325	75	900	–	0.0	7.55	2158	24.84	4.99	clear	245.80	494400
1330	–	–	–	–	–	–	–	–	Pump off	246.00	

Comments:

HALEY ALDRICH

PUMPING TEST/DEVELOPMENT
FIELD DATA LOG

Project Name: FCI PTF	Project No.: 129687-007
Well No.: O-04	Date: 3/4/18
Location: Florence, AZ	Measuring Point: sphet
Total Depth of Well (ft bls): 1200	Screen Interval (ft bls): 500-1200
Pump Setting (ft bls): various	Pump Type: grundfos electric
How Q Measured: ~~cone / stopwatch~~ totalizer	Personnel: S Hensel

Time	Discharge (gpm)	Pumping ~~Water~~ Level (ft)	Specific Capacity (gpm/ft)	Sand Content (ml/L)	pH	Sp. Cond. (mmhos/cm)	Temp. °F	Comments	(NTU) Turbidity	(bgs) DTW	(gal) Totalizer
1350	–	–	–	–	–	–	–	Pump on	~~8.08~~	214.85	494600
1355	68	900	–	0.0	7.53	2127	24.35	clear	8.08	216.20	494700
1410	68	900	–	0.0	7.55	2153	24.94	clear	4.27	246.05	495900
1430	68	900	–	0.0	7.52	2118	24.11	clear	6.67	246.25	496900
1450	68	900	–	0.0	7.54	2153	25.05	clear	2.52	247.05	498400
1455	–	–	–	–	–	–	–	Pump off	–	248.20	498400
1555	–	–	–	–	–	–	–	Pump on	–	213.15	498400
1600	69	600	–	0.0	7.53	2237	23.82	clear	10.7	214.75	498600
1615	69	600	–	0.0	7.55	2134	24.60	clear	2.96	245.65	499800
1635	69	600	–	0.0	7.58	2127	24.59	clear	3.63	246.65	501300
1640	–	–	–	–	–	–	–	Pump off	–	246.90	501400
1700 ~~1645~~	–	–	–	–	–	–	–	Pump on	–	214.65	501400
1705 ~~1700~~	68	600	–	0.0	7.58	2070	23.80	clear	4.85	216.95	501500
1720	68	600	–	0.0	7.59	2127	24.63	clear	3.56	235.75	502600
1740	68	600	–	0.0	8.04	2301	20.79	clear	4.71	247.05	503900
3/4/18 1745	–	–	–	–	–	–	–	Pump off	–	247.35	504000
3/5/18 0700	–	–	–	–	–	–	–	Pump on	–	210.65	504000
0705	60	600	–	0.0	7.63	1123	17.33	clear	393	212.05	504100
0725	60	600	–	0.0	7.69	1298	23.49	clear	3.37	244.95	505400
0745	60	600	–	0.0	7.77	1315	23.90	clear	4.96	245.86	506900
0805	60	600	–	0.0	7.76	1317	23.66	clear	3.82	247.05	508200
0810	–	–	–	–	–	–	–	Pump off	–	247.35	508300
0825	–	–	–	–	–	–	–	Pump on	–	214.65	508900
0830	66	600	–	0.0	7.77	1305	23.28	clear	3.86	217.25	508400
0845	66	600	–	0.0	7.71	1336	24.13	clear	2.24	217.50	509400
0900	66	600	–	0.0	7.72	1333	24.34	clear	2.61	245.95	510500
0915	66	600	–	0.0	7.71	1338	24.42	clear	2.32	247.25	512000
0920	–	–	–	–	–	–	–	Pump off	–	247.50	512000

Additional Comments:

PUMPING TEST/DEVELOPMENT
FIELD DATA LOG

Project Name: FCI PTF	Project No.: 129687-007
Well No.: O-04	Date: 3/5/18
Location: Florence, AZ	Measuring Point: spicket
Total Depth of Well (ft bls): 1200	Screen Interval (ft bls): 500-1200
Pump Setting (ft bls): various	Pump Type: ~~Fa~~ Grundfos electric
How Q Measured: ~~Con~~ Totalizer	Personnel: S. Hensel

Time	Discharge (gpm)	Pumping ~~Water~~ Level (ft)	Specific Capacity (gpm/ft)	Sand Content (ml/L)	pH	Sp. Cond. (mmhos/cm)	Temp. °F	Comments	Turbidity	DTW	Totalizer
0950	–	–	–	–	~~7.72~~	–	–	Pump on	–	219.99	512200
0955	72	600	–	0.0	~~8.20~~	1316	23.19	clear	4.78	220.50	512300
1015	~~0945~~	72	600	–	0.0	7.80	1356	24.99	clear	3.70	248.65	513400
1035	72	600	–	0.0	~~8.30~~ 7.73	1343	23.54	clear	3.20	247.65	515160
1040	–	–	–	–	–	–	–	Pump off	–	247.95	515200
1055	–	–	–	–	~~7.68~~	–	–	Pump on	–	216.75	515200
1100	73	600	–	0.0	~~8.29~~	1370	24.33	clear	3.14	218.80	515300
1120	73	600	–	0.0	7.81	1357	25.00	clear	3.25	247.25	516700
1140	73	600	–	0.0	7.79	1360	25.19	clear	2.38	249.35	514000
1145	–	–	–	–	–	–	–	Pump off	–	250.05	518105
	End Pumping										

Additional Comments:

APPENDIX I

Well Video Log and Gyroscopic Survey Reports

Southwest Exploration Services, LLC
borehole geophysics & video services

Southwest Exploration Services, LLC

25811 S. Arizona Avenue Chandler, AZ. 85248

Phone: (480) 926-4558 Fax: (480) 926-4579 Web: www.swexp.com

Client: Florence Copper | Survey Date: March 21, 2018

Address: 1575 West Hunt Hwy | Invoice: | Run: 1

City: Florence | State: AZ | Zip: 85132 | **Well Name:** O-04

Requested By: H&A | P.O.: | **Well Owner:** Florence Copper

Copy To: | Camera:

Purpose: General Inspection | Zero Datum: Top of Casing

Location: | Depth: 1200 ft. | Vehicle: 290

Field: Florence Copper Project | Type Perfs: Horizontal Slots

1st Csg.O.D. 5 In. | Csg Weight: | From: 0 ft. | To: 1195 ft. | 2nd Csg.O.D. | Csg Weight: | From: | To:

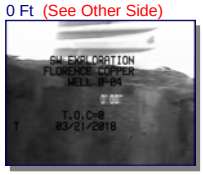
Standing Water Level: 230 ft. | Pumping Water Level: | Pump Depth: | O.D.Ref.: Measured | Casing Buildup: None

Operator: D. Beam | Lat.: | Long.: | Sec: | Twp: | Rge:

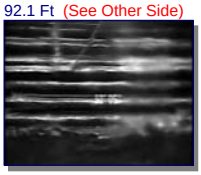
Other Information:

Wellbore Snapshots

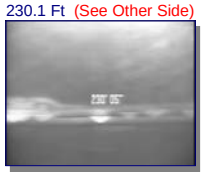
0 Ft (See Other Side)



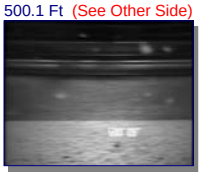
92.1 Ft (See Other Side)



230.1 Ft (See Other Side)



500.1 Ft (See Other Side)



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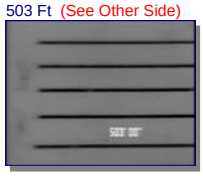
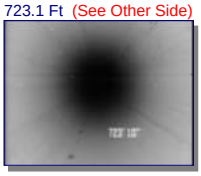
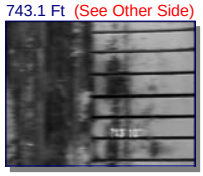


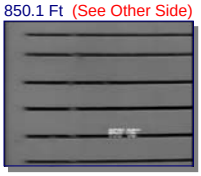
723.1 Ft (See Other Side)



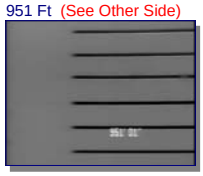
743.1 Ft (See Other Side)



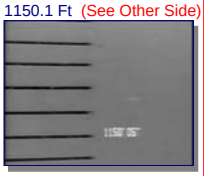
850.1 Ft (See Other Side)



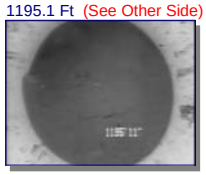
951 Ft (See Other Side)



1150.1 Ft (See Other Side)



1195.1 Ft (See Other Side)

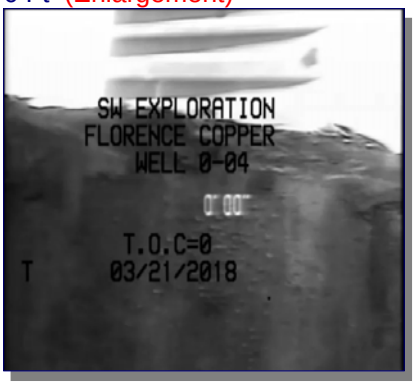


True Depths: (SideScan-Feet)	WELLBORE / CASING INFORMATION
0.	Survey started at the top of the case.
92.1	Seam above static water level.
230.1	Static water level observed.
500.1	Transition piece observed.
503.	First perforations observed.
723.1	Down view of the casing.
743.1	View of perforations.
850.1	Another view of the perforations.
951	Perforations appear to be clear.
1,150.1	Perforations near the bottom of the casing.
1,195.1	Bottom of the casing observed, survey ended.

Notes:

11 WELLBORE SHAPSHOTS

0 Ft (Enlargement)

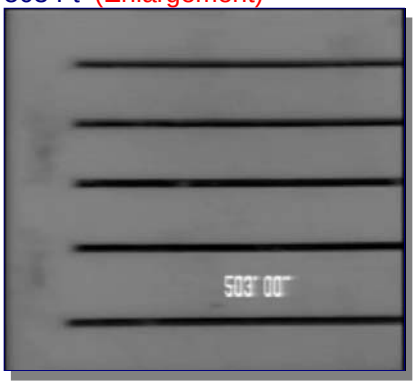


92.1 Ft (Enlargement)

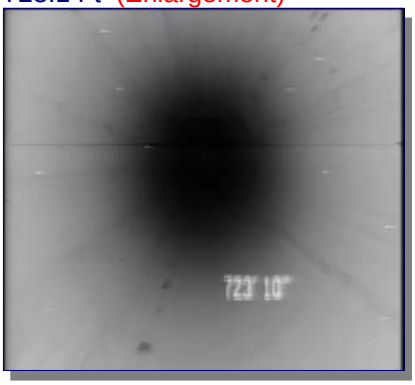
230.1 Ft (Enlargement)

500.1 Ft (Enlargement)

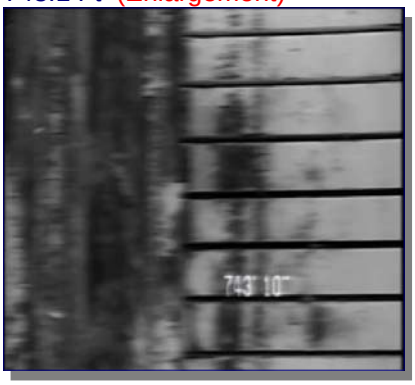
503 Ft (Enlargement)



723.1 Ft (Enlargement)



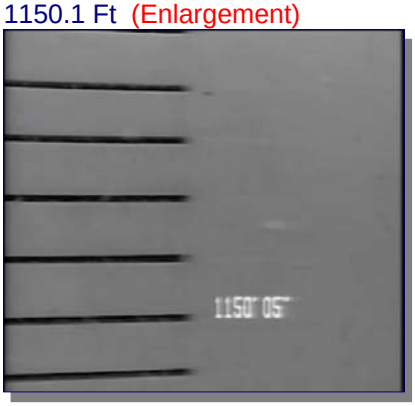
743.1 Ft (Enlargement)



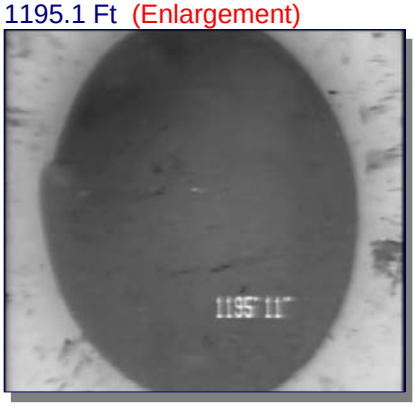
850.1 Ft (Enlargement)

951 Ft (Enlargement)

1150.1 Ft (Enlargement)



1195.1 Ft (Enlargement)



Drift Report

Wellbore DRIFT Interpretation

PREPARED ESPECIALLY FOR

Florence Copper and Florence Copper

O-04

Wednesday - March 21, 2018

Southwest Exploration Services, LLC
borehole geophysics and video services

Southwest Exploration Services, LLC
(480) 926-4558

WELLBORE DRIFT INTERPRETATION

Southwest Exploration Services, LLC

(480) 926-4558

Company: Florence Copper **Well Owner:** Florence Copper

County: Pinal **State:** Arizona **Country:** United States

Well Number: O-04 **Survey Date:** Wednesday - March 21, 2018 **Magnetic Declination:** Declination Correction Not Used

Field: Florence Copper Project **Drift Calculation Methodology:** Balanced Tangential Method

Location:

Remarks:

Witness: H&A **Vehicle No.:** 800 **Invoice No.:** **Operator:** K. MITCHELL **Well Depth:** 1220 Feet **Casing size:** 5 Inches

Tool: Gyro - 1422 **Lat.:** **Long.:** **Sec.:** **Twp.:** **Rge.:**

MEASURED DATA			DATA COMPUTATIONS						
DEPTHS, feet	INCLINATIONS, degrees	AZIMUTHS, degrees	TVD, feet	T. LATITUDE, feet	T. LONGITUDE, feet	DOGLEG SEV., degrees per 20 Feet	DOGLEG SEV., degrees per 100 feet	DRIFT DIST., feet	DRIFT BGR., degrees
0	0.22	310.40	0.00						
20	0.16	357.69	19.99	0.053	-0.030	1.00	3.57	0.06' (.72")	330.10
40	0.31	064.61	39.98	0.104	0.018	0.41	4.90	0.11' (1.32")	009.70
60	0.46	067.66	59.97	0.158	0.141	0.96	0.24	0.21' (2.52")	041.80
80	0.45	047.16	79.96	0.242	0.273	0.84	1.58	0.36' (4.32")	048.40
100	0.43	030.34	99.96	0.360	0.368	0.42	1.30	0.52' (6.24")	045.70
120	0.41	020.16	119.95	0.492	0.431	0.13	0.79	0.65' (7.80")	041.20
140	0.47	013.49	139.94	0.639	0.475	0.43	0.52	0.80' (9.60")	036.60
160	0.46	352.01	159.93	0.798	0.483	0.83	1.66	0.93' (11.16")	031.20
180	0.48	049.32	179.92	0.932	0.535	0.95	4.26	1.07' (12.84")	029.90
200	0.47	348.08	199.91	1.067	0.582	0.37	4.53	1.22' (14.64")	028.60
220	0.42	009.12	219.90	1.220	0.577	1.00	1.62	1.35' (16.20")	025.30
240	0.41	035.18	239.89	1.351	0.630	1.00	2.00	1.49' (17.88")	025.00
260	0.46	053.58	259.88	1.457	0.736	0.34	1.42	1.63' (19.56")	026.80
280	0.35	095.28	279.87	1.499	0.861	0.93	3.16	1.73' (20.76")	029.90
300	0.23	344.15	299.86	1.532	0.911	0.78	7.33	1.78' (21.36")	030.70
320	0.17	127.12	319.85	1.553	0.924	0.53	8.43	1.81' (21.72")	030.70
340	0.15	154.31	339.84	1.512	0.959	0.00	2.09	1.79' (21.48")	032.40

True Vertical Depth: 1195.21' **Final Drift Distance:** 5.16' (61.92") **Final Drift Bearing:** 90.60°

Note: Magnetic Declination is not used because it is not a factor in the calculation of well drift or alignment. Magnetic Declination is only important if attempting to hit a target or miss another well and then it is included in the calculations.

WELLBORE DRIFT INTERPRETATION

Southwest Exploration Services, LLC

O-04

(480) 926-4558

MEASURED DATA			DATA COMPUTATIONS						
DEPTHS, feet	INCLINATIONS, degrees	AZIMUTHS, degrees	TVD, feet	T. LATITUDE, feet	T. LONGITUDE, feet	DOGLEG SEV., degrees per 20 Feet	DOGLEG SEV., degrees per 100 feet	DRIFT DIST., feet	DRIFT BRG., degrees
360	0.16°	179.48°	359.83	1.460	0.971	0.56	1.94	1.75' (21.00")	033.60
380	0.15°	191.82°	379.82	1.406	0.966	0.73	0.96	1.71' (20.52")	034.50
400	0.37°	177.43°	399.81	1.316	0.964	0.88	1.11	1.63' (19.56")	036.20
420	0.41°	185.28°	419.80	1.180	0.960	0.20	0.61	1.52' (18.24")	039.10
440	0.35°	167.86°	439.79	1.049	0.966	0.97	1.35	1.43' (17.16")	042.60
460	0.32°	194.95°	459.78	0.935	0.964	0.96	2.08	1.34' (16.08")	045.90
480	0.18°	127.54°	479.77	0.862	0.975	0.12	4.93	1.30' (15.60")	048.50
500	0.39°	123.64°	499.76	0.805	1.057	0.81	0.30	1.33' (15.96")	052.70
520	0.54°	098.78°	519.75	0.753	1.207	0.59	1.91	1.42' (17.04")	058.00
540	0.64°	112.57°	539.74	0.696	1.403	0.73	1.07	1.57' (18.84")	063.60
560	0.29°	108.44°	559.73	0.637	1.554	0.28	0.32	1.68' (20.16")	067.70
580	0.52°	080.53°	579.72	0.636	1.692	0.77	2.14	1.81' (21.72")	069.40
600	0.30°	065.46°	599.71	0.673	1.829	0.49	1.17	1.95' (23.40")	069.80
620	0.36°	036.53°	619.70	0.745	1.914	0.69	2.22	2.05' (24.60")	068.70
640	0.41°	013.70°	639.69	0.865	1.968	0.13	1.76	2.15' (25.80")	066.30
660	0.35°	032.19°	659.68	0.986	2.017	0.83	1.43	2.25' (27.00")	063.90
680	0.24°	345.52°	679.67	1.078	2.039	0.80	3.52	2.31' (27.72")	062.10
700	0.09°	081.23°	699.66	1.121	2.044	0.25	6.59	2.33' (27.96")	061.30
720	0.22°	324.60°	719.65	1.155	2.037	0.54	7.57	2.34' (28.08")	060.50
740	0.32°	197.70°	739.64	1.133	1.998	0.24	7.95	2.30' (27.60")	060.40
760	0.41°	215.85°	759.63	1.022	1.939	0.94	1.40	2.19' (26.28")	062.20
780	0.58°	158.09°	779.62	0.870	1.935	0.65	4.29	2.12' (25.44")	065.80
800	0.53°	135.37°	799.61	0.710	2.038	0.97	1.75	2.16' (25.92")	070.80
820	0.72°	107.83°	819.60	0.606	2.223	0.06	2.12	2.30' (27.60")	074.80
840	0.43°	102.49°	839.59	0.551	2.416	0.29	0.41	2.48' (29.76")	077.10
860	0.47°	083.82°	859.58	0.544	2.571	0.57	1.44	2.63' (31.56")	078.10
880	0.31°	228.41°	879.57	0.517	2.612	0.47	8.47	2.66' (31.92")	078.80
900	0.27°	109.61°	899.56	0.465	2.616	0.42	7.65	2.66' (31.92")	079.90
920	0.23°	158.76°	919.55	0.412	2.675	0.69	3.70	2.71' (32.52")	081.20
940	0.52°	139.21°	939.54	0.306	2.749	0.04	1.51	2.77' (33.24")	083.70
960	0.77°	116.70°	959.53	0.177	2.928	0.30	1.74	2.93' (35.16")	086.50
980	0.56°	093.28°	979.52	0.111	3.146	0.98	1.80	3.15' (37.80")	088.00
1,000	0.59°	081.45°	999.52	0.121	3.345	0.95	0.92	3.35' (40.20")	087.90

True Vertical Depth: 1195.21' **Final Drift Distance: 5.16' (61.92")** **Final Drift Bearing: 90.60°**

WELLBORE DRIFT INTERPRETATION

Southwest Exploration Services, LLC

O-04

(480) 926-4558

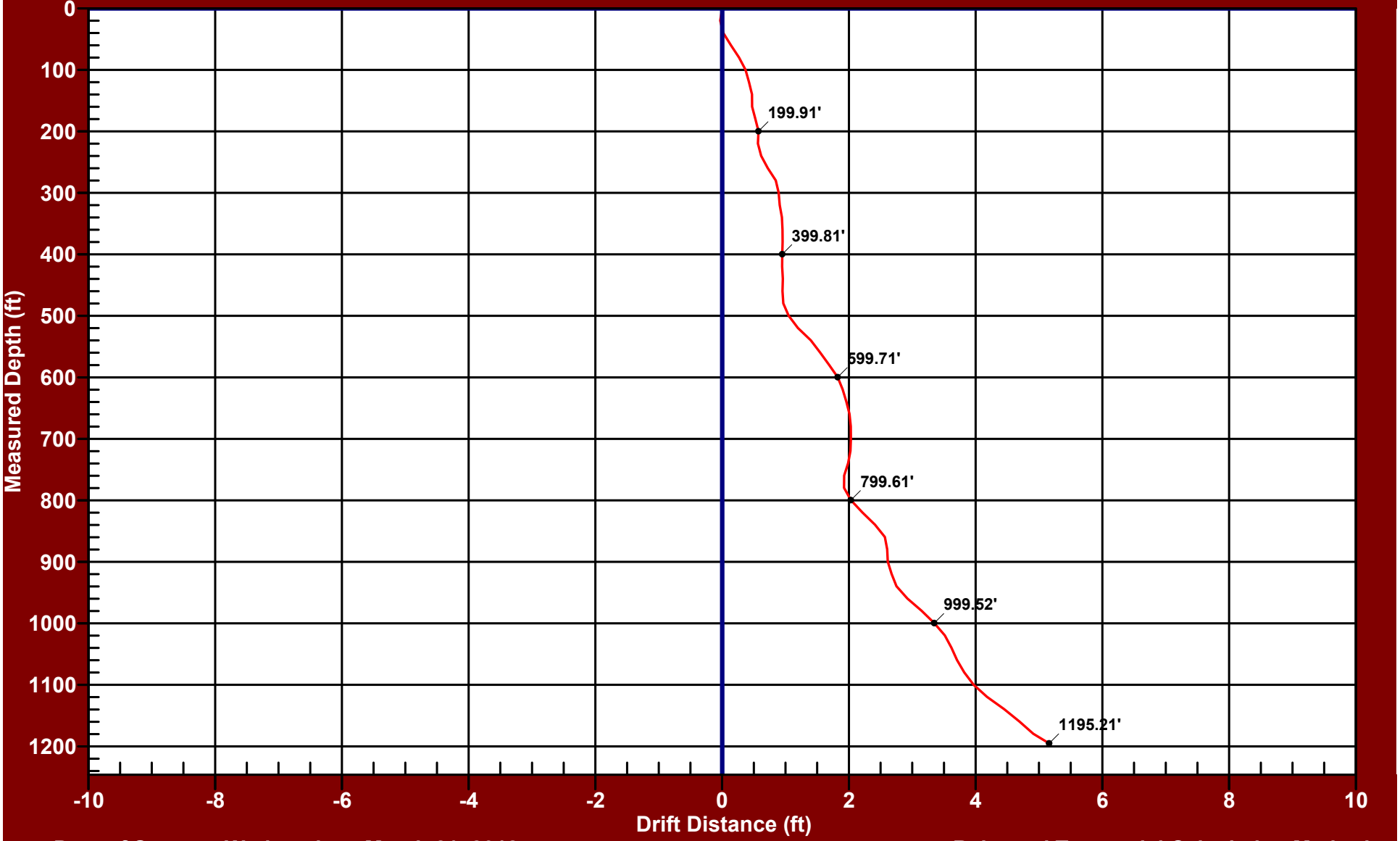
MEASURED DATA			DATA COMPUTATIONS						
DEPTHS, feet	INCLINATIONS, degrees	AZIMUTHS, degrees	TVD, feet	T. LATITUDE, feet	T. LONGITUDE, feet	DOGLEG SEV., degrees per 20 Feet	DOGLEG SEV., degrees per 100 feet	DRIFT DIST., feet	DRIFT BRG., degrees
1,020	0.46°	057.99°	1,019.51	0.179	3.515	0.96	1.81	3.52' (42.24")	087.10
1,040	0.28°	045.30°	1,039.50	0.256	3.618	0.46	0.98	3.63' (43.56")	086.00
1,060	0.31°	098.07°	1,059.49	0.283	3.706	0.25	3.95	3.72' (44.64")	085.60
1,080	0.36°	113.57°	1,079.48	0.250	3.817	0.92	1.20	3.83' (45.96")	086.20
1,100	0.63°	124.16°	1,099.47	0.163	3.966	0.09	0.82	3.97' (47.64")	087.60
1,120	0.80°	114.80°	1,119.46	0.043	4.184	0.16	0.73	4.18' (50.16")	089.40
1,140	0.85°	106.88°	1,139.45	-0.059	4.453	0.98	0.61	4.45' (53.40")	090.80
1,160	0.54°	095.92°	1,159.44	-0.112	4.689	0.54	0.85	4.69' (56.28")	091.40
1,180	0.76°	079.54°	1,179.43	-0.098	4.913	0.80	1.27	4.91' (58.92")	091.10
1,196	1.04°	079.33°	1,195.21	-0.052	5.157	0.61	0.03	5.16' (61.92")	090.60

Page No. 3 **True Vertical Depth: 1195.21'** **Final Drift Distance: 5.16' (61.92")** **Final Drift Bearing: 90.60°**

PLANE OF DRIFT VIEW - O-04

Florence Copper
Florence Copper

Drift Distance = 5.16 Feet Drift Bearing = 90.6 Degrees True Vertical Depth = 1195.21 Feet



Date of Survey: Wednesday - March 21, 2018

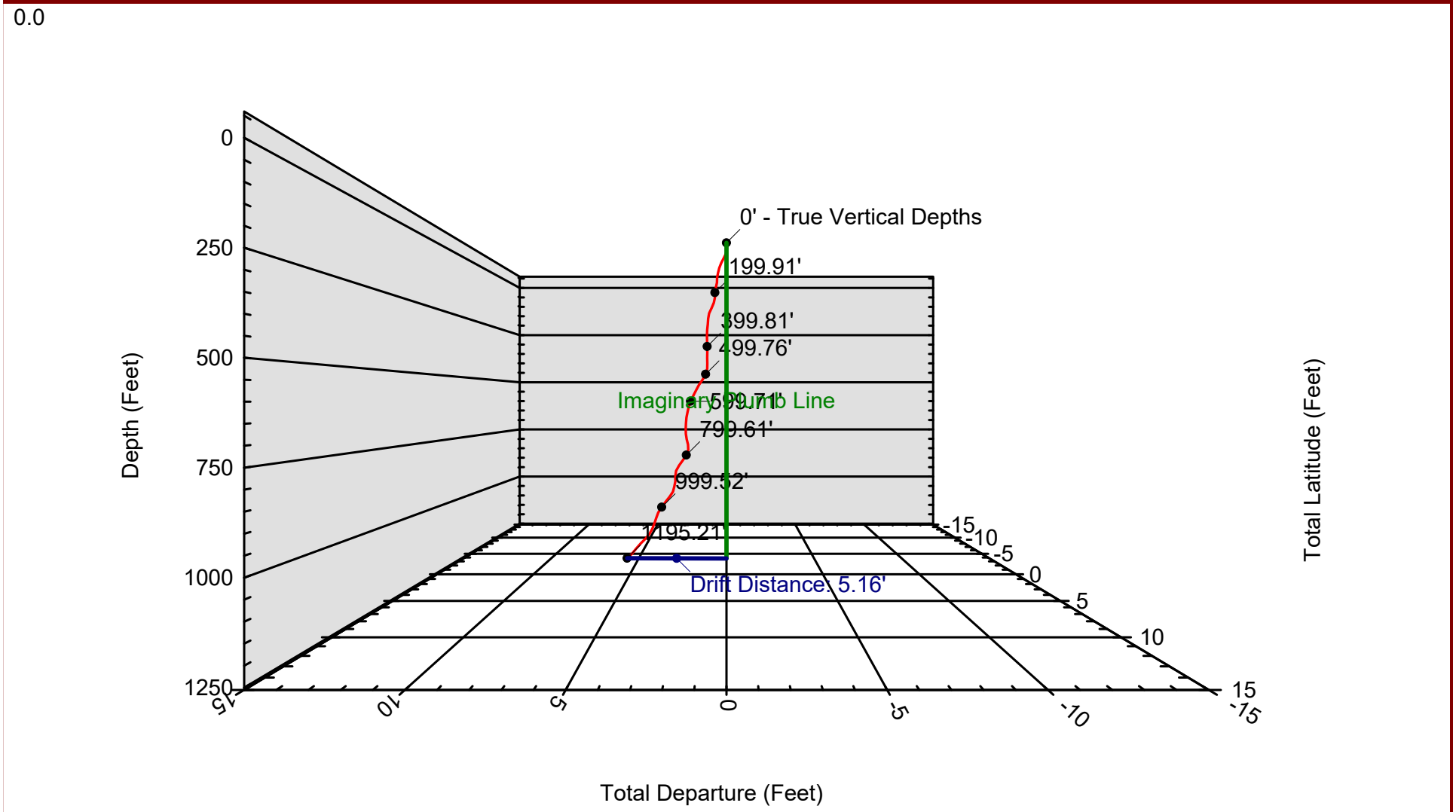
Balanced Tangential Calculation Method

Southwest Exploration Services, LLC (480) 926-4558

3D PROJECTION VIEW - O-04

Florence Copper
Florence Copper

Drift Distance = 5.16 Feet **Drift Bearing = 90.6 Degrees** **True Vertical Depth = 1195.21 Feet**



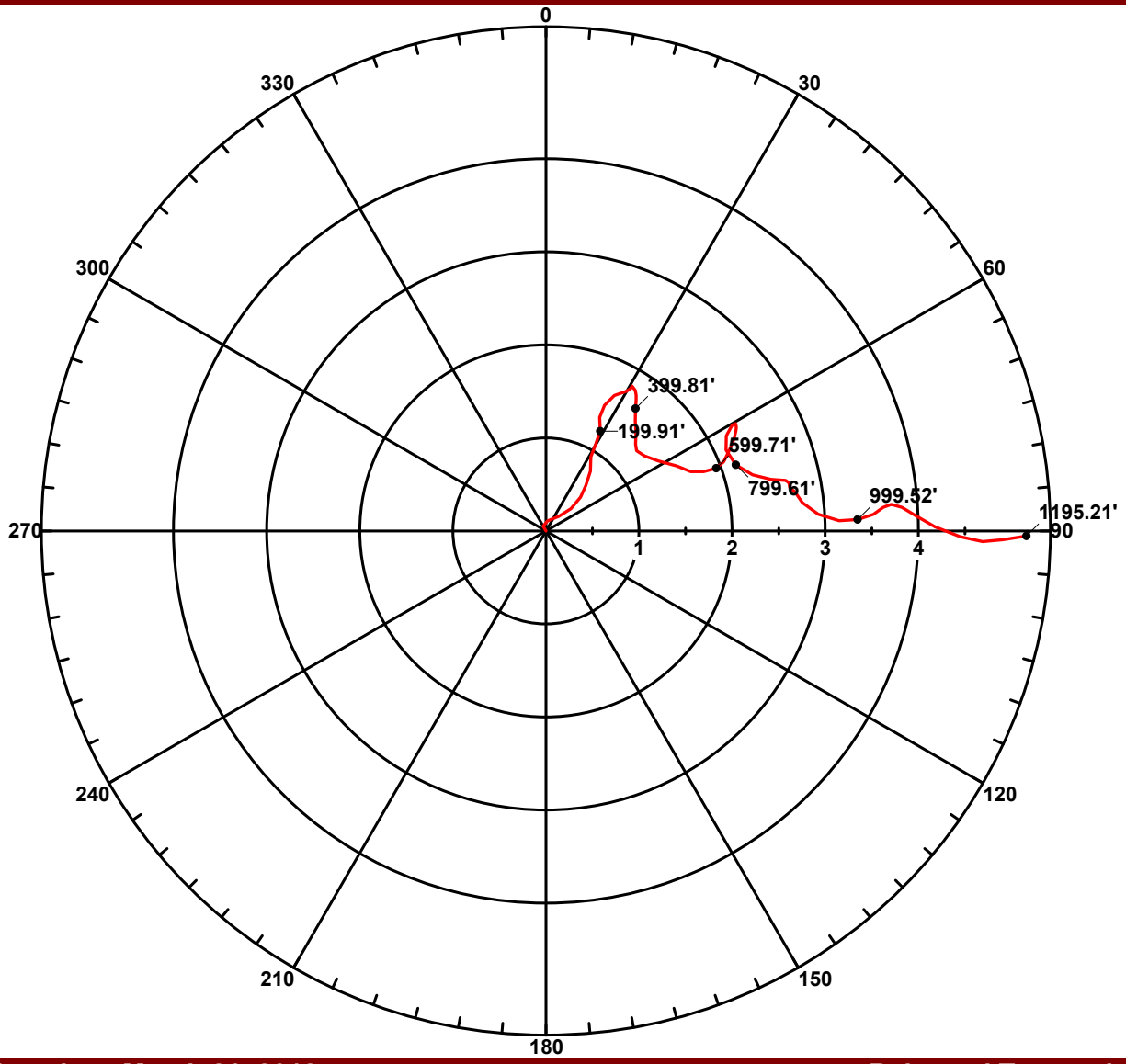
Date of Survey: Wednesday - March 21, 2018 **Balanced Tangential Calculation Method**

Southwest Exploration Services, LLC (480) 926-4558

POLAR VIEW - O-04

Florence Copper
Florence Copper

Drift Distance = 5.16 Feet Drift Bearing = 90.6 Degrees True Vertical Depth = 1195.21 Feet



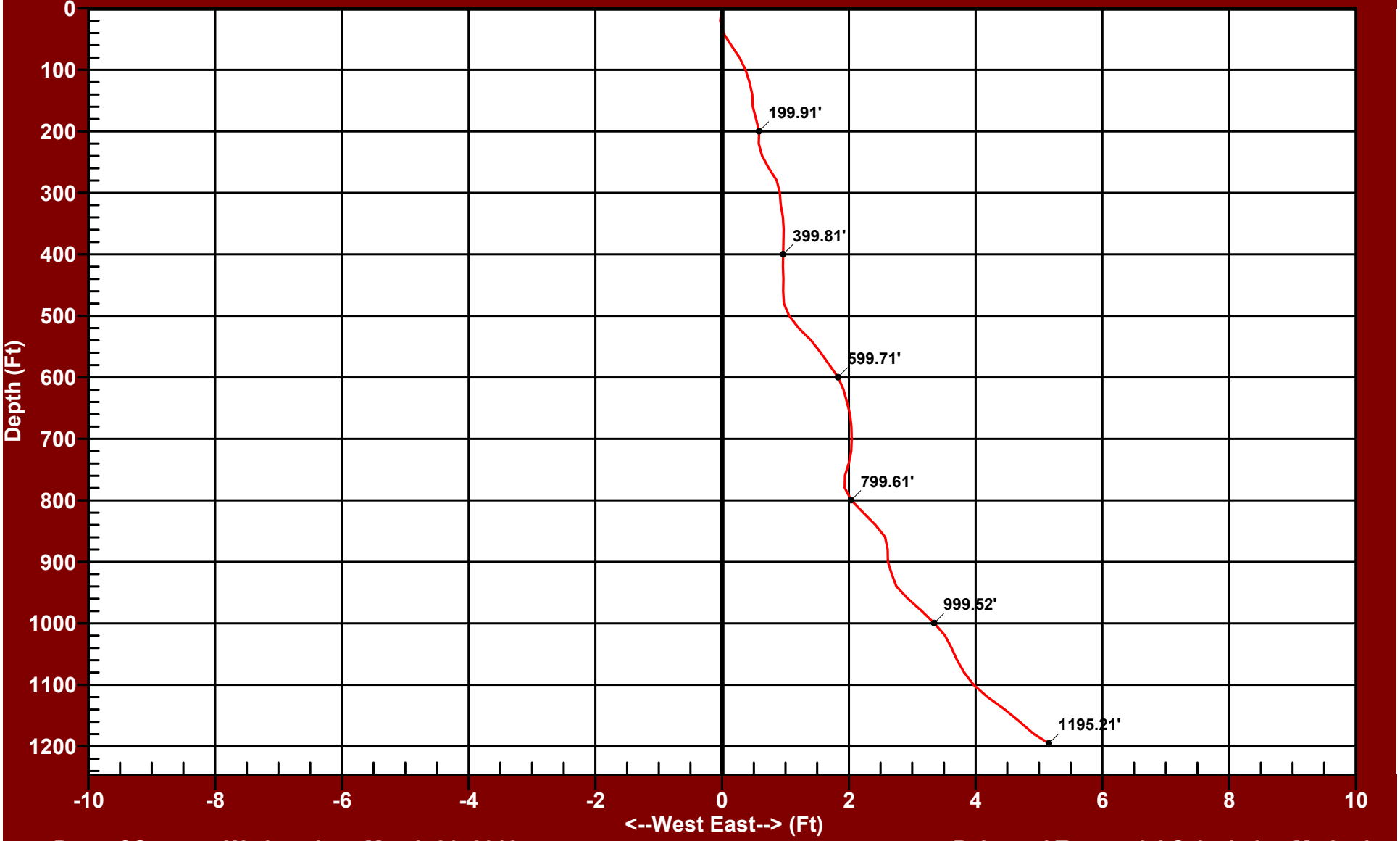
Date of Survey: Wednesday - March 21, 2018 **Balanced Tangential Calculation Method**

Southwest Exploration Services, LLC (480) 926-4558

EASTING RECTANGULAR VIEW - O-04

Florence Copper
Florence Copper

Drift Distance = 5.16 Feet Drift Bearing = 90.6 Degrees True Vertical Depth = 1195.21 Feet



Date of Survey: Wednesday - March 21, 2018

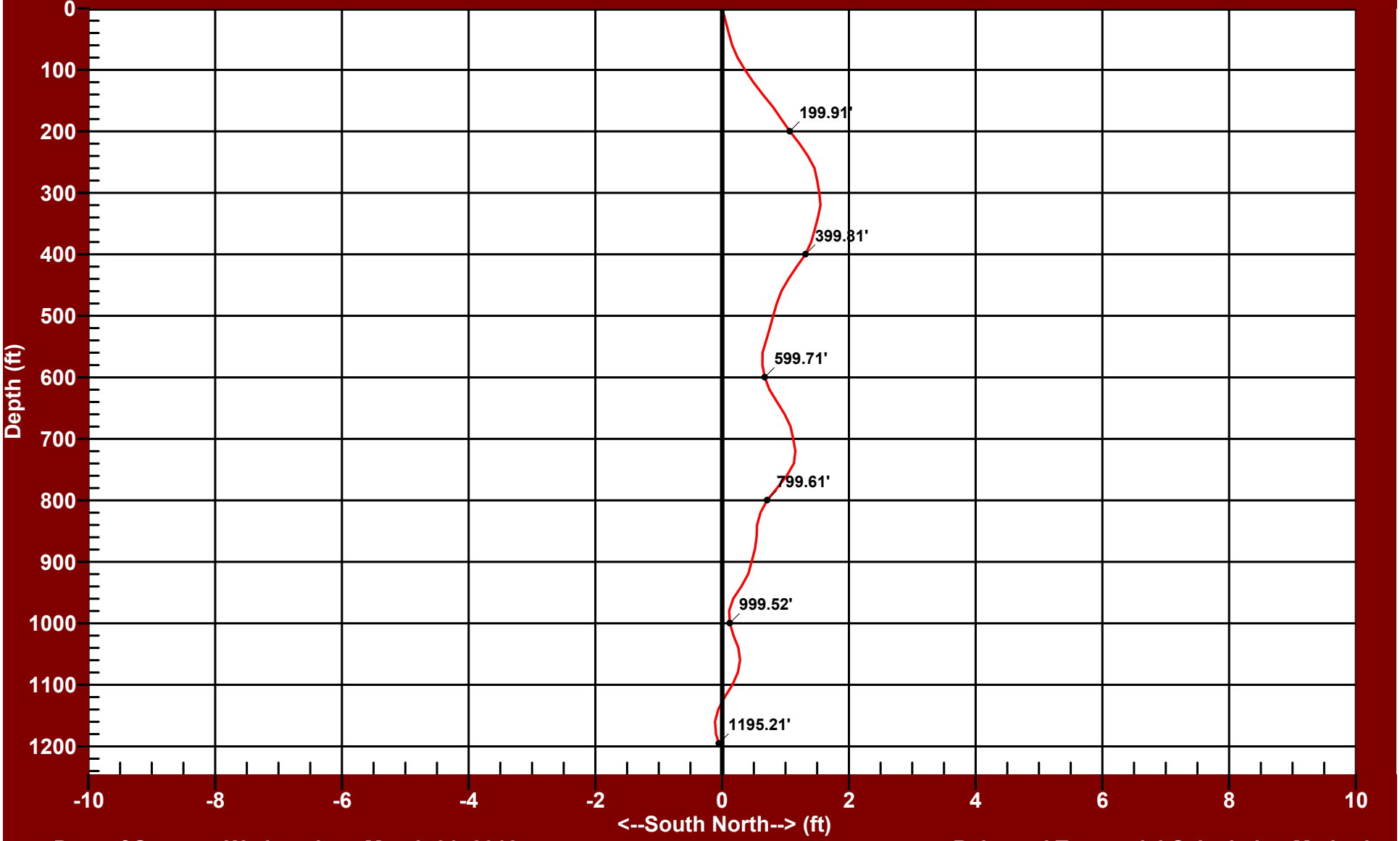
Balanced Tangential Calculation Method

Southwest Exploration Services, LLC (480) 926-4558

NORTHING RECTANGULAR VIEW - O-04

Florence Copper
Florence Copper

Drift Distance = 5.16 Feet Drift Bearing = 90.6 Degrees True Vertical Depth = 1195.21 Feet



Date of Survey: Wednesday - March 21, 2018

Balanced Tangential Calculation Method

Southwest Exploration Services, LLC (480) 926-4558